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ABSTRACT

This report summarizes the findings of the first phase of a study designed to provide an evaluation of the NDEA Title IV Graduate Fellowship Program in regard to its stated objective of increasing the number of college and university teachers by assisting doctoral students preparing for academic careers. It is based entirely upon secondary analysis of available data and consists primarily of statistical tables with only a brief summary of the major findings. These data suggest that while the award of the fellowship per se did not develop a strong sense of commitment to completion of the doctorate among all awardees, those who received the fellowship for 3 years and obtained their degree had a strong teaching commitment, even in fields where alternative sources of employment were plentiful. (HS)

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STUDY OF NDEA TITLE IV FELLOWSHIP PROGRAM
PHASE I

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PREFACE

This report was made possible through the cooperation and assistance of several agencies. We wish to acknowledge the contribution of the National Academy of Sciences which provided data files from the National Register of Earned Doctorates and of the National Opinion Research Center which contributed data from its study of 1961 college graduates. The Bureau of Higher Education in the U. S. Office of Education supplied data records for all NDEA grantees in the years studied. Robert Hall and Robert Dressel of the Bureau of Higher Education contributed valuable advice throughout the study.

The report was written by Barton Sensenig with the assistance of Leonore Reid, under the general supervision of Laure M. Sharp, the study director. Richard Jones made substantial contributions to the study design and was responsible for planning and designing the computer tabulations on which the report is based.

SUMMARY

The first four years of the NDEA Title IV Fellowship program are evaluated with respect to the program's stated objective of increasing the number of college and university teachers by assisting doctoral students preparing for academic careers. The report is based on secondary analysis of data already available through the Office of Education, the National Academy of Sciences Register of Earned Doctorates, and an NORC survey of 1961 college graduates. The major findings are summarized below:

Characteristics of NDEA Fellows

NDEA Fellows are more often enrolled in the Humanities and Social Sciences than doctoral candidates as a whole or other fellowship holders. These two areas account for about half of all NDEA awardees. During the first four years, NDEA grants were most heavily concentrated in the Southeastern region of the country where graduate facilities have been weakest. One out of every seven Title IV recipients was a woman. This proportion is lower than that among doctoral candidates as a whole, but slightly higher than the proportion of women among other fellowship holders. Over half of the NDEA grantees were married. The proportion of married fellows is approximately the same as among doctoral candidates as a whole and somewhat larger than the proportion among other fellowship holders.

Completion of the Doctorate

Thirty per cent of the NDEA grantees from the first four years of the program (1959-1962) had completed the doctorate as of June 1966. About one out of four resigned his fellowship before its expiration, but about 5 per cent of those who resigned subsequently obtained the doctorate. NDEA Fellows who completed the doctorate did so somewhat more rapidly than a similar group of non-NDEA Fellows, but any expectations that they will obtain the doctorate within three or four years appear unrealistic in light of the experience of the first cohorts.

Men are more than twice as likely to complete the doctorate as women. Women were more likely to resign their fellowships, but even among those who did not resign, men were more likely to follow through to completion of the degree. Married men obtained the degree more often than those who were single, but married women were not consistently more likely than single women to complete their studies. Older grantees were more likely to complete the doctorate and less likely to resign their fellowships than younger fellows, except among the first cohort of grantees.

Variations in the duration of doctoral study by academic area generally tended to follow patterns already observed in previous studies of doctoral recipients. Grantees in the Humanities and Social Sciences require more time than those in the Biological Sciences, Physical Sciences, or Engineering. One noteworthy exception was observed: previous studies indicate that doctoral recipients in the field of Education generally require a longer period of doctoral study than those in other fields, but NDEA Fellows in Education completed the doctorate within the time span of the study more often than those in other academic areas. Education is a relatively unsupported field, and these fellows were probably a highly select group, but this finding suggests that increased support in the field of Education may have high payoff value.

Recruitment into University Teaching

The NDEA Title IV Fellowship Program has been eminently successful in encouraging doctoral candidates who are committed to academic careers. Over half of the NDEA Fellows who had completed the doctorate reported that they were engaged in teaching, and two-thirds were employed by a college or university. The proportion in university teaching varied widely by field of study, according to the other employment opportunities available. Over nine out of ten of the fellows in the Humanities, but only one-quarter of those in the Physical Sciences were engaged in teaching following receipt of their doctorate. Within each academic area, however, NDEA Fellows were much more likely to go into teaching than a similar comparison group of non-NDEA doctoral recipients.

On the whole, although the program did not result in a strong sense of commitment to completion of the doctorate, those who obtained the degree had a strong teaching commitment, even in fields where alternate sources of employment were plentiful. In this respect, the program has definitely lived up to the goals of its sponsors. From the data on hand, no information could be gathered about the educational and occupational careers of the fellows who had not obtained the doctorate by 1966. Information about this group, and additional data concerning doctorate recipients, will be gathered at a later time in Phase II of this study.

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I. INTRODUCTION

This report summarizes the findings of the first phase of a study designed to provide an evaluation of the NDEA Title IV Graduate Fellowship Program in regard to its stated objective of increasing the number of college and university teachers by assisting doctoral students preparing for academic careers. It is based entirely upon secondary analysis of available data.[1] The report is intended to provide relevant statistics for use within the Office of Education, and consists, therefore, primarily of statistical tables with only a brief summary of the major findings.

The NDEA Title IV Graduate Fellowship Program was enacted in 1958 in response to the serious national shortage of well-qualified college teachers. It provides up to three years of financial support for doctoral candidates who express the intention to pursue academic careers. The fellowships have been allocated to achieve three objectives:[2]

1. To increase the number of college and university teachers by assisting doctoral students preparing for academic careers.

2. To encourage the development and full utilization of the capacity of graduate programs in the United States leading to the doctorate.

3. To promote a wider geographic distribution of doctoral programs of good quality.

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[1] Phase II of the study will provide primary data through a survey of NDEA Fellows and comparable graduate students who were not NDEA Fellows.

[2] From the "Fellowship Allocation Policies" listed on the NDEA Title IV Institutional Application Form--OE 1054 (4-66).

The evaluation of the program presented in this report focuses on the first of these objectives. The second two lie within the purview of the Office of Education, and in-house statistics are already available which show that the distribution of fellowships has been in accordance with these policies.

The present study attempts to provide answers to three basic questions:

1. What are the characteristics of NDEA Title IV Fellows and how do they compare with the total population of doctoral candidates?

2. How effective is the NDEA Title IV Program in reducing the amount of time required to obtain a doctorate?

3. How effective is the program in increasing the supply of college and university teachers?

This report covers the first four years of the Title IV Program, from the academic year 1959-60 through 1962-63. Later years were excluded because grantees for subsequent years would be extremely unlikely to have completed the doctorate by June 1966, which was the latest date for which data on doctoral recipients were available.

A total of 5500 fellowships were awarded in the first four years of the program: 1000 in the fall of 1959 and 1500 in each of the three succeeding years. The overwhelming majority of these (95%) were three-year fellowships, but a few one- or two-year fellowships were awarded to students with some previous graduate credits (Table 1).

TABLE 1

TYPE OF FELLOWSHIP BY YEAR OF AWARD

Type of Fellowship	Total		Year of Award							
			1959[a]		1960		1961		1962	
	N	%	N	%	N	%	N	%	N	%
Three-year	5207	94.7	1000	100.0	1432	95.5	1393	92.9	1382	92.2
Two-year	274	5.0	-	-	60	4.0	101	6.7	113	7.5
One-year	19	0.3	-	-	8	0.5	6	0.4	5	0.3
Total	5500	100.0	1000	100.0	1500	100.0	1500	100.0	1500	100.0

[a] According to Dean Gustave Arlt, who directed the first year of the program, an additional 96 two-year fellowships were awarded in September 1959. These, however, are not included in the NDEA file on which the following analysis is based. See Gustave Arlt, "The First Ph. D.'s Under Title IV," Journal of Higher Education XXXIV, No. 5 (May 1963).

In the first year of the program, 1959-60, the 1000 fellowships were awarded in 272 approved graduate programs at 123 institutions. By 1962-63, fellowships were distributed among 810 active programs at 161 institutions. If it had not been for the statutory limitations, further expansion could have taken place, for the Office of Education reports that in 1963 applications were received from about 80 per cent of the U. S. doctoral institutions and four times as many fellowships were requested as were available.

Fellowships were allotted according to the three principles listed above, on page one. Grantees were required to indicate their intention to follow an academic career, and all NDEA awards throughout this period were made to new or expanding graduate programs. In addition, awards were concentrated in those areas of the country, particularly the Southeast, where doctoral programs were weakest (Table 2).[3]

TABLE 2

REGIONAL DISTRIBUTION OF GRADUATE FELLOWSHIPS AWARDED UNDER TITLE IV
WITH TOTAL U. S. DOCTORATE PRODUCTION AND TOTAL U. S. POPULATION
FOR ACADEMIC YEARS 1959-60 THROUGH 1962-63
(In Percentages)

Regions[a]	Doctorate Production[b]	1960 Population	Academic Years			
			1959 (1959-60)	1960 (1960-61)	1961 (1961-62)	1962 (1962-63)
All Regions	100	100	100	100	100	100
New England	10	6	7	7	8	7
Mideast	25	21	14	16	16	17
Great Lakes	26	20	11	15	16	18
Plains	9	9	10	11	11	11
Southeast	9	22	27	23	23	21
Southwest	5	8	9	9	8	9
Rocky Mountains	3	2	8	6	6	6
Far West	13	12	14	13	12	11

[a] U. S. Office of Business Economics regions; not Office of Education Administrative regions.

[b] Percentage of annual doctorate production based on data from academic year 1961-62.

The above discussion indicates that allocation of NDEA awards among programs and institutions has been in accordance with the stated objectives of the program. However, to evaluate the success of the program in increasing the number of college and university teachers, it was necessary to obtain data concerning individual grantees.

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[3] Table 2 and the preceding discussion are drawn from OE-10004-63, "Report on the National Defense Education Act, Fiscal Year 1963."

II. METHODOLOGY

The NDEA Records

The Office of Education provided records on all 5500 NDEA Title IV Fellowship recipients for the four academic years covered. These records contain basic background statistics such as sex, date of birth, prefellowship educational history, the institution awarding the fellowship, and information on whether the grantee completed the fellowship or resigned (see Appendix I). The Office of Education records thus permit description of the NDEA recipients and some analysis as to which types of grantees are more likely to complete tenure of their fellowships. Even so, they are of limited value because they do not indicate whether a grantee completed the doctorate, the time required for completion, or if he subsequently entered university teaching.

The National Academy of Sciences Register of Earned Doctorates

Data on completion of doctorate could be obtained through a screening process. All doctorates awarded by accredited U. S. colleges and universities are listed in the National Academy of Sciences Register of Earned Doctorates. For purposes of this register, each doctoral recipient is asked to complete a one-page questionnaire which permits ascertaining such important items as the length of time required to obtain the doctorate and the type of employment undertaken after receiving the doctorate (see Appendix II).

By comparing the names and social security numbers of the 5500 NDEA Fellows with the NAS register of doctoral recipients, we were able to determine which of the grantees had received the doctorate as of June 1966, the latest date for which data were available. In this manner, 1670 (30%) of the 5500 NDEA Title IV Grantees for 1959-60 through 1962-63 were identified as NDEA Fellows who had received the doctorate as of June 30, 1966.[4] Data on these 1670 fellows from the NAS file were then collated with their Office of Education records, permitting some analytical comparisons between various subgroups of NDEA recipients regarding rate of progress in obtaining the doctorate and fulfillment of the stated intention to pursue an academic career.

It must be stressed that the group of "NDEA Fellows who received the doctorate by June 1966" is a very special group, consisting only of those who completed the doctorate quickly. The earliest grantees (1959) were awarded the doctorate within seven years of their grant, and the last group considered (1962) finished within four years. However, the median time lapse between bachelor's and doctorate for all doctorates awarded 1964-66, as listed in the NAS Register, was 8.2 years.[5] Thus, it can be presumed that many of the NDEA grantees covered by this study who had not completed the doctorate by June 1966 will eventually obtain their degrees.

This group of early graduates is likely to differ in several ways from the hypothetical group of NDEA Fellows who will eventually complete the doctorate. First, it is probably biased toward Engineering and the Physical or Biological Sciences in which doctoral candidates generally complete their work more rapidly than in the Humanities, Social Sciences, or Education. In addition, it can be inferred from a more detailed analysis of the data that this group of doctorates included a disproportionately high number of NDEA Fellows who had earned some graduate credits prior to receiving the NDEA award. This is especially likely for 1961 and 1962 grantees who received the doctorate within four or five years of their grant.

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[4] The NAS register lists 92,163 doctoral recipients between January 1, 1960 and June 30, 1966.

[5] National Academy of Sciences, Doctorate Recipients from United States Universities 1958-1966 (Washington, D. C.: 1967), Table 14, p. 67.

The time limitation inherent in this study, imposed because of the nature of the available data, severely restricts lines of analysis based on both the proportion of grantees receiving the doctorate and the duration of doctoral study. Thus, the reader must remember that statistics to be considered later in the study, such as the median number of years of doctoral study for this group, cannot provide a basis for generalization to the total population of fellows, but can only be used for comparisons with selected groups of nonfellows who received the doctorate.

The NAS Comparison Group

As one measure of the effectiveness of the NDEA program, a comparison was made between NDEA Fellows who had received the doctorate and a similar group of doctoral recipients who had not held NDEA awards. The 1670 NDEA doctoral recipients were compared with a similar group of non-NDEA Fellows who received the doctorate within an equivalent time period. In order to establish such a comparison group, two non-NDEA recipients were drawn from the NAS register for each NDEA Fellow who had received the doctorate. These nonfellows were matched with the NDEA recipients on sex and the year in which the bachelor's degree was received. This matching was done in order to reduce variations due to factors other than the NDEA award.[6]

Since the NDEA Fellows and the comparison doctorates were matched on the year of receipt of the bachelor's degree, and since both must have received the doctorate between January 1, 1960 and June 30, 1966, the two groups were bound to have achieved the doctorate within roughly the same amount of time. Thus only small differences in elapsed time can be expected. Extreme care should be exercised in the interpretation of Tables II-4 to II-12 relating to the speed of obtaining the degree. These tables can be at most only suggestive.

The actual procedure for selecting the comparison group was as follows. For each NDEA Fellow located in the NAS register, the next two doctoral recipients in alphabetical order of the same sex who had obtained their bachelor's degree in the same year were selected for the comparison group. A comparison group of 3265 doctoral recipients was obtained by this method. Two comparable doctoral recipients were selected for each NDEA Fellow to ensure sufficient numbers within each field of study and to reduce chance variations. It should be noted that the selection was not random; and thus, statistical measures of association are not strictly valid for the comparisons with NDEA Fellows.

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[6] It is important to note that the non-NDEA Fellows may have been holders of other fellowships during their study period. In fact, given the speed with which they completed their doctoral work, this is likely, especially in fields such as the natural sciences where the proportion of supported graduate students is high.

Chi-squares have been presented in a few instances to indicate the degree to which the NDEA Fellows and the NAS matched group differed with respect to a given characteristic. As noted above, use of the chi-square statistic is not strictly valid in this case, because the matched group was not randomly selected. On the other hand, the NDEA group is the entire population of NDEA Fellows who received the doctorate within the given period, not a sample, and thus there is no sampling error in this distribution. The reader should be careful not to attribute absolute validity to the levels of significance implied by the chi-squares presented. They may, however, usefully serve to indicate the relative importance of the various differences.

In order to collate and compare the Office of Education data with that from the National Academy of Sciences, it was necessary to accommodate differences between the codes used by the two organizations to denote doctoral field of study. This variable, one of the most basic in this analysis and one which appears in almost all of the following tabulations, has already been found to be significant in research of this kind. Previous studies have shown that speed in obtaining the degree, the propensity to go into university teaching, and the amount of financial support available vary widely among the various academic disciplines. To minimize differences between the categories utilized by the two organizations and to provide an appropriate level of detail for analysis, a common code was derived which is listed in Table 3.[7] All disciplines are organized into six major academic areas--Humanities, Education, Social Sciences, Biological Sciences, Physical Sciences, and Engineering--with three fields, the Humanities, Social Sciences, and Physical Sciences, broken down into more detailed categories.

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[7] Details of how this code was constructed, together with the original OE and NAS codes, are presented in Appendix III.

TABLE 3

NDEA FELLOWS WHO RECEIVED THE DOCTORATE BY SEX AND FIELD OF STUDY AS MEASURED BY THE NDEA CODE AND THE NAS CODE

Field of Study	NDEA Fellows Who Received the Doctorate			
	Men		Women[a]	
	NDEA Code	NAS Code	NDEA Code	NAS Code
Humanities	232	226	29	29
English, Comparative Literature, Speech and Drama	87	79		
Classics, Languages and Linguistics	71	84		
All Other Humanities	74	63		
Education	173	134	23	21
Social Sciences	362	376	22	36
Economics and Business Administration	116	140		
History	52	61		
Political Science and International Relations	66	65		
Psychology	33	57		
Sociology and Anthropology	44	48		
All Other Social Sciences	51	5		
Biological Sciences	211	215	21	14
Physical Sciences	362	376	5	5
Chemistry	120	127		
Mathematics and Computer Science	128	132		
Physics	81	85		
All Other Physical Sciences	33	32		
Engineering	227	229	1	1
Total[b]	1567	1556	101	106

[a] Because of the small numbers, data for women are analyzed only by major academic areas.

[b] There is a discrepancy between the NDEA and NAS codes for sex. According to the NDEA codes there are 1567 men, 101 women, and 2 not ascertained. According to the NAS codes there are 1556 men, 106 women, and 8 not ascertained.

Table 3 shows the correspondence between the NDEA and the NAS codes for NDEA Fellows who received the doctorate (the only group for which both codes are available) when collapsed into the common categories. The correspondence is not perfect, but the differences are less than 4 per cent for all major academic areas except Education. The gross difference between the codes for Education indicates that findings based on comparison of NDEA and NAS data in this field must be viewed with some caution. The discrepancy arises chiefly because Educational Psychology is included entirely under Education in the NDEA code but partially under Psychology in the NAS code.

Comparisons within some of the detailed fields of study must also be made somewhat cautiously. While the correspondence of the codes is good for the categories within the Physical Sciences and for some of those within the Social Sciences, such as Political Science and International Relations, and Sociology and Anthropology, there are significant discrepancies between the codes for other subcategories.

Other Comparison Groups

NAS Random Sample

In addition to the matched comparison group, a random sample of 231 doctoral recipients was drawn from the NAS register. The characteristics of this sample should reflect those of all doctoral recipients listed in the NAS register between January 1, 1960 and June 30, 1966. The characteristics of this sample are presented next to the characteristics of the NDEA doctoral recipients and those of the NAS matched group in Section I of the tables to permit identification of the differences between the two specially selected groups and to present the characteristics of a representative sample of all doctoral recipients over the same period.

NORC Doctoral Candidates

The two NAS groups discussed so far are comparable only with NDEA Fellows who received the doctorate, not with the entire population of NDEA Fellows. NDEA Fellows as a whole should be compared with other graduate students who intended to study for the doctorate, regardless of whether or not they ever completed their studies.

To approximate such a comparison group, special tabulations were constructed from an NORC study of 1961 college graduates.[8] This study consisted of four waves of questionnaires mailed in 1961, 1962, 1963 and 1964 to a representative sample of 1961 B. A. recipients. The data permitted identification of those graduates enrolled for an advanced degree in 1964 who intended to obtain the doctorate. This group is therefore representative of all members of this cohort who became doctoral candidates and thus provided a meaningful comparison group for recipients of NDEA awards.

Further data available for the NORC group include type and source of financial support received by these doctoral candidates in the academic year 1963-64, thus permitting comparisons between NDEA Fellows and other fellowship recipients as well as scholarship students, graduate student assistants, and those who received no financial support.

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[8] James A. Davis, Great Aspirations. Chicago: Aldine Publishing Co., 1964.

III. HIGHLIGHTS OF FINDINGS

Characteristics of NDEA Fellows

All NDEA Fellows

NDEA Fellows throughout the four year period were most likely to be pursuing doctoral degrees in the Social Sciences and the Humanities (Table I-1). These two areas accounted for at least half of the NDEA awards made in each year. The Physical Sciences were third, followed by the Biological Sciences and Engineering. Fewest awards were made in the field of Education. This ordering did not vary significantly over the four year period, though awards in Education rose from 5 per cent to 10 per cent of the total.

Slightly less than one out of seven NDEA Fellows were women (Table I-2). This overall proportion remained fairly constant over the first four years of the program. The proportion of women grantees within each academic area ranged widely, from one-quarter of those in the Humanities to almost none in Engineering. These proportions did vary over the years in certain fields. Female grantees in the Humanities rose from 20 per cent to 27 per cent, and the proportion in Education fell by a similar amount. The proportion of women among NDEA Fellows also varied by geographic region. It was high in the Mideast, Far West, New England, and the Great Lakes area, and low in the Southwest, Rocky Mountain states, Southeast, and Plains area. Thus, more of the grantees were women in areas with strong educational centers and high doctoral production.

Well over half of the NDEA Fellows (58%) were married at the time they received their grants (Table I-3). Male grantees were almost twice as likely to be married as female grantees; only one out of three female recipients was married. Married students received fewer grants in the first year of the program than in the three subsequent years under study: 53 per cent versus 58-59 per cent. The proportion of married males jumped significantly in the second year and continued to rise slightly thereafter while that of married females rose in the second year but declined markedly over the following years.

The median age for all NDEA Fellows at the time of their award was 23.5 years (Table I-3). This age did not vary significantly over the first four years of the program. Male fellows were slightly older than female grantees, but the difference in medians was small. A little over one third of the NDEA Fellows were 25 or older at the time of their award. The proportion over thirty, though small, increased from 8 per cent to 12 per cent over the four year period.

Comparison of NDEA Recipients With Other Doctoral Candidates

Characteristics of NDEA recipients as compared with those of doctoral candidates receiving other types of financial support are shown in Table I-4. The comparison groups are drawn from the NORC study of 1961 college graduates and represent a cohort of students who were enrolled for a graduate degree in 1963-64 who expected eventually to receive the doctorate.[9]

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[9] See Methodology, p. 12.

Since NDEA Fellows within the NORC sample are identified separately, it is possible to check the representativeness of the sample. In general, the characteristics of NDEA's within the sample match those of all NDEA recipients extremely well. The only notable discrepancies are to be found in the fields of the Biological Sciences and the Social Sciences.

There is a smaller proportion of women among NDEA recipients than among NORC doctoral candidates as a whole, but women appear slightly more likely to receive an NDEA than other fellowships.

The proportion of married students among NDEA Fellows (58%) is approximately the same as the proportion among NORC doctoral candidates as a whole, and significantly higher than among other fellowship holders. This finding tends to indicate that the NDEA dependents' allowance effectively offsets the increased financial burdens on married students, permitting equitable distribution of NDEA Fellowships regardless of marital status, while other fellowships presumably prove insufficient for married students.

NDEA Fellows were most likely to be enrolled in the Social Sciences or Humanities, while other fellowship holders were most often in the Physical Sciences. This reflects the Office of Education policy of supporting those fields in which new programs are being introduced and the need for teachers is greatest. In this connection, it is worth noting that doctoral candidates in Education, a relatively unsupported field, are not helped significantly more by the NDEA program than by other fellowships.

NDEA Fellows Who Received the Doctorate

Tables I-5 to I-12 show the characteristics of NDEA Fellows who received the doctorate compared with the matched group of non-NDEA doctoral recipients and the random sample for 1960-66 from the NAS register, a sample which should reflect the characteristics of all doctoral recipients for the period. As noted earlier, these NDEA Fellows are a select group consisting only of those who completed the doctorate within the time limitations imposed by the nature of the study. Although these tables must, therefore, be interpreted cautiously and the findings can only be suggestive, they permit consideration of some important background characteristics such as father's and mother's education which are not available for all NDEA grantees.

Compared with the NAS matched group, NDEA Fellows who received the doctorate are more heavily concentrated in the Humanities and Social Sciences, reflecting the large numbers of grantees in these areas noted earlier (Table I-5). These concentrations are obscured when this group is compared with the NAS random sample because of the longer duration of doctoral study in these fields. (Table I-5 also indicates a higher proportion of NDEA Fellows in Education, but this finding is rendered questionable by the discrepancy between the NDEA and NAS codes for Education discussed earlier under "methodology.")

NDEA Fellows who received the doctorate are most heavily concentrated in the Southeast, as were the NDEA grants, while both the NAS matched group and the random sample are more heavily concentrated in those areas of the country which produce the largest numbers of doctorates such as the Mideast and Great Lakes regions (Table I-6).

Table I-7 verifies that the NDEA Fellows who received the doctorate and the comparison group are closely matched on sex, as called for in the study design. It also shows that there is a higher proportion of women in the NAS random sample, representing doctoral recipients as a whole. As noted in Table I-4, women doctoral candidates are less likely than men to receive fellowships of any kind.

NDEA doctoral recipients reported a larger number of dependents than did the NAS matched group (Table I-7). This finding suggests that the dependents' allowance operates effectively in enabling fellows to complete degree work even while faced with the financial pressures involved in raising a family.

NDEA Fellows who received the doctorate tended to come from slightly lower social backgrounds than the non-NDEA Fellows in the matched group as measured by education of parents and private school attendance (Tables I-8 and I-9). Only 24 per cent of the NDEA Fellows, compared with 28 per cent of the matched group, reported that their father held a college degree. More of the NDEA Fellows came from public high schools; 86 per cent of the NDEA grantees but only 80 per cent of the matched group had attended public schools.

There was no significant difference between the sizes of the high school graduating classes of the grantees and the matched group, though both of these groups tended to come from classes larger than the average for doctoral recipients as a whole, as represented by the random sample (Table I-9). This suggests that rapid degree achievers tend to be of urban rather than small-town or rural origin.

Table I-10 compares the NDEA doctoral recipients and the matched group with respect to their employment status in the year immediately preceding receipt of the doctorate. One-third of the NDEA grantees reported that they still had fellowship status; 22 per cent were employed part-time (many as graduate assistants); and another 21 per cent were employed full-time at their college or university. NDEA grantees were more likely to be on fellowships than those in the matched group, of whom only about one-quarter were receiving fellowship support during the year preceding receipt of the doctorate; on the other hand, part-time employment, usually as graduate assistants, and work on research grants were more frequent sources of support for the matched group.

Table I-11 shows that NDEA Fellows had slightly less professional work experience prior to receipt of the doctorate than their non-NDEA counterparts. This is in line with the objective of the program to speed up receipt of the doctorate. Previous studies have shown that taking time out for full-time employment is a major contributor to the length of time required to obtain the doctorate.[10]

Table I-12 indicates that NDEA Fellows were more likely than those in the matched group to have firm employment commitments at the time they received their doctorate.

Completion of the Doctorate

Resignations

One out of every four NDEA Fellows resigned before completing tenure of his fellowship (Table II-1). Resignations were especially high in the first year of the program.[11] Most of those who resigned did so because of a change in career plan or for other personal reasons. About one out of six resigned for academic reasons and one out of nine transferred to another school (Table II-2).

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[10] Laure M. Sharp, Five Years After the College Degree: Graduate and Professional Education, BSSR, June 1965, p. 11ff.

[11] These resignations resulted in a significant reduction in the effectiveness of the program since throughout this period vacated fellowships could not be reawarded to new fellows. This limitation was removed with the enactment of PL 88-210 in December 1963.

Women grantees were much more likely to resign than men (Tables II-3A to II-3D). Of the grantees in the first year of the program 26 per cent of the men and 46 per cent of the women did not complete tenure of their fellowships, and of those in the following years, 22-24 per cent of the men dropped out, compared with 30-40 per cent of the women.

Married men were much less likely to resign their fellowships than single men (Tables II-3A to II-3D). There was, however, no consistent relationship between the dropout rate and marital status for women.

Older grantees are slightly less likely to resign (Tables II-3A to II-3D). This trend is very slight for men, and there was an exception in the first year when men over thirty showed a higher rate of resignation than those under thirty. Women over 25, however, were much less likely to resign, regardless of the year of the program. Presumably, older fellows are more settled in their career choice and less likely to make the changes which were cited as reasons for most of the resignations. In addition, older grantees are more likely to be married.

Resignations within each academic area varied from year to year (Tables II-3A to II-3D). The proportion of dropouts was consistently lowest among grantees in Education. In the first year of the program there was an exceptionally high resignation rate among men in the Physical Sciences, but in the second year the Social Sciences and Engineering had the highest dropout rates. In 1961-62 and 1962-63, all sciences--Physical Sciences, Biological Sciences and Social Sciences--had relatively high rates of resignation, with the Humanities and Engineering significantly lower, and Education lowest of all.[12]

Receipt of the Doctorate[13]

Three out of ten of the 5500 NDEA grantees from the first four years of the program had received the doctorate as of June 1966 (Table II-1). Thirty-seven per cent of the fellows from 1959 and 1960 had completed the doctorate as well as 30 per cent of the 1961 grantees and 19 per cent of the 1962 grantees. It is obvious from these data that any expectations based on the assumption that grantees should be able to finish the doctorate in three years are unrealistic. In fact, the proportion of doctoral recipients appears to level off around 37 per cent after about six years from the date of the award. These data are, of course, tentative, since further study is necessary to determine how many grantees are still working on their degrees at this time and how many will ultimately join the growing ranks of ABD's.[14] They do suggest, however, that considerable wastage might be avoided if the program provided support for completion of the dissertation in addition to the first three years of doctoral study.[15]

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[12] More information about reasons for resignation and ultimate study and work outcomes for resigned fellows will be sought in Phase II of this study, which will investigate the reasons for the variations in resignation rates by field, sex and marital status.

[13] Important independent verification for the findings in this section is found in Joseph D. Mooney. "Attrition Among Ph. D. Candidates: An Analysis of a Cohort of Recent Woodrow Wilson Fellows" Journal of Human Resources, III, No. 1 (Winter 1968), pp. 47-62. In addition to the variables considered here, Dr. Mooney studies undergraduate academic achievement, socioeconomic background, and size and selectiveness of graduate school. His most striking finding is a strong inverse correlation between the size of graduate school and the proportion of fellows in the humanities and social sciences who attain the doctorate within eight years of entrance into graduate school.

[14] ABD--"All but dissertation."

[15] This recommendation was made by Dean Arlt after his evaluation of the first NDEA doctorates. Op. cit, p. 249.

One of the reasons the above data are only indicative is the varying rate of resignations. As noted earlier, there was a higher rate of resignation in the first year of the program. Among those who completed the tenure of their fellowship, almost half of the 1959 grantees had completed the doctorate by June 1966 (Table II-1). The median time elapsed from the year of award to the doctorate for these fellows would thus be about seven years. Since most of these fellows graduated in June 1959, the time elapsed from bachelor's degree to doctorate would also be approximately seven years. This is slightly less than the previously noted 8.2 year median for all doctorates awarded from 1964 to 1966.

It should not be assumed that all of the fellows who resigned gave up their intention of pursuing the doctorate. Some transferred to other universities or fields, or resigned to accept another fellowship. Detailed analysis not presented here revealed that seven per cent of the 1959 fellows who resigned and 5 per cent of all fellows who resigned throughout the four year period had received the doctorate by June 1966.

In general, older married males were most likely to have completed the doctorate, just as they were least likely to resign. Looking at those fellows who completed tenure of the fellowship, in Tables II-3A to II-3D, it can be seen that this group is still more likely to complete the doctorate even when differences in the rates of resignation are controlled.

Men were more than twice as likely to complete the doctorate as women (Tables II-3A to II-3D). About two-fifths of the men from 1959 and 1960 had received the doctorate, compared with 15 per cent of the women from 1959 and 20 per cent of those from 1960. This finding is not explained by the higher rate of resignation among women: the relationship remains strong among those fellows who completed tenure of their fellowships.

Among males, those who were married were significantly more likely to have completed the doctorate, even allowing for the higher rate of resignation among single men (Tables II-3A to II-3D). Marital status did not show any consistent relationship to completion of the doctorate for female grantees. Among those who completed tenure of their fellowships, married women were less likely to complete the doctorate except for 1962 grantees, for whom this relationship was reversed. It is worth noting that of the women who resigned their fellowships, none of those who were single completed the doctorate while a number of the married women did (table not presented).

Older women were much more likely to achieve the doctorate than younger women (Tables II-3A to II-3D). Older men also tended to complete the doctorate more often than younger men except among the first grantees. These relationships hold both for NDEA Fellows as a whole and for the subgroup that completed tenure of their fellowships.

The proportion of NDEA Fellows who completed the doctorate by June 1966 varied widely by field of study. Grantees in Education were most likely and those in the Humanities and Social Sciences least likely to have earned their degrees (Tables II-3A to II-3D). This finding generally holds for both men and women grantees, but there were too few women in the Physical Sciences and Engineering to permit consideration of these fields. To illustrate the range of variation: among the men who received awards in 1960-61, 62 per cent of those in Education and over half in the Biological and Physical Sciences, but only one-quarter of those in the Humanities and one-third in the Social Sciences had completed the doctorate by June 1966. The relatively longer duration of doctoral study in the Humanities and

Social Sciences has already been observed by other scholars for doctoral recipients in general.[16] These scholars have found, however, that doctoral candidates in Education usually require the longest period of graduate study. It is, therefore, striking that Title IV grantees in Education completed the doctorate more rapidly than those in other fields. Since relatively few fellowships are provided in the field of Education, either through the NDEA Program or from other sources, these grantees were probably a select group of highly qualified and motivated students. The finding suggests, however, that increased support in the field of Education might have high payoff value.

Duration of Doctoral Study

Less than one out of ten NDEA Fellows completed the doctorate within the three years alloted by the fellowship (Table II-4). In fact, only about half of the earliest grantees who completed tenure of their fellowships were found to have received the doctorate within the seven year period studied. These data tend to indicate that NDEA Fellows complete the doctorate only slightly faster than other doctoral candidates.

For those NDEA Fellows who did receive the doctorate, it is possible to ascertain the duration of doctoral study. It must be reemphasized that this is a select group determined by the time span of the study and that the rates of progress for this group, which will be discussed below, have no absolute significance by themselves. Only the relative rates of progress of the various groups considered are meaningful. The reader should be further cautioned that the NAS matched group with which comparisons are made is, by design, limited to a similar range in the duration of doctoral study. Thus, only small differences can be expected.

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[16] NAS. Doctorate Recipients, p. 66ff. and Wilson, op. cit., p. 22ff.

As anticipated, there are no startling differences in the duration of doctoral studies between the NDEA Fellows who received the doctorate and the NAS matched group. The number of median years for both groups between receipt of the bachelor's degree and receipt of the doctorate was 5.6 years (Table II-4). The influence of the three-year fellowship can be seen, however, in that a slightly higher proportion of the NDEA grantees--35 per cent versus 32 per cent--received the doctorate within four years of their bachelor's degree. This tendency can be seen more clearly in terms of the number of years of graduate study (years elapsed from entry into graduate school until receipt of the doctorate). Forty-two per cent of the NDEA Fellows, compared with 35 per cent of the matched group received the doctorate within four years of graduate study (Table II-5).

The number of years elapsed between high school graduation and receipt of the doctorate was slightly longer for NDEA Fellows than for the matched group--10.5 years versus 10.3 years (Table II-6). This difference was due to a group among the NDEA Fellows who apparently allowed many years to pass before entering graduate school and thus reported over 15 years between their high school graduation and receipt of the doctorate.[17]

Tables II-7 through II-10 show the variations in duration of doctoral study among fields for males and females separately. It can be noted immediately that women take somewhat longer to complete the doctorate than men. This finding is not explained by the concentration of women in the Humanities and Social Sciences which normally require longer periods of study, for women generally take longer within each field.

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[17] For a discussion of the different ways of measuring duration of doctoral study, see Berelson, Graduate Education in the United States. New York: McGraw-Hill, pp. 156ff.

In terms of the time lapse between receipt of the bachelor's degree and receipt of the doctorate, candidates in Education generally require the longest period to obtain the doctorate, followed by those in the Humanities and Social Sciences, with candidates in the Physical or Biological Sciences and Engineering completing the degree most rapidly. This finding holds for NDEA grantees and the matched group, and for both men and women. These data confirm the findings of earlier studies by Harmon, Berelson, Wilson, etc. (see Bibliography).

In terms of years of graduate study (from entry into graduate school until receipt of the doctorate), the same ordering of fields is found for the NAS matched group, but NDEA doctoral recipients in Education are found to complete their studies more rapidly than those in the Humanities. In fact, female grantees in Education received the doctorate in fewer years of graduate study than their counterparts in any other field. This, together with the earlier finding that grantees in Education were most likely to have completed the doctorate by June 1966, supports the conclusion that NDEA Fellows in the field of Education obtained their degrees rapidly. The longer time lapse between receipt of the bachelor's degree and receipt of the doctorate presumably reflects delays prior to entering graduate school.

Among males, the NDEA grantees consistently attain the doctorate in less time than the NAS comparison group within each field of study. This holds true both with respect to years of graduate study and years elapsed between the bachelor's degree and receipt of the doctorate. The relationship is somewhat obscured in the totals, because of the heavier concentration of NDEA Fellows in the Humanities and Social Sciences which tend to require more time than the Physical Sciences.

In Table II-9A, which shows years of graduate study for males, chi-squares have been presented to refine comparison of the differences in duration of graduate study between NDEA Fellows and the corresponding matched groups. According to these statistics, the NDEA grant makes the greatest difference in the Biological Sciences, followed by Education, Social Sciences, Humanities, Engineering and Physical Sciences respectively. It is doubtful, however, that the Biological Sciences really deserve first place. Although most NDEA Fellows in this field completed the doctorate more quickly than the matched group, there were more NDEA Fellows than other doctorates who required ten years or more to complete their graduate studies.

The relative effectiveness of the NDEA program within each academic area is perhaps more clearly highlighted by considering only the proportion of doctoral recipients who received the degree within four years.[18] This corresponds roughly to the three year duration of the fellowship, allowing for some time lapse between completion of the requirements and conferral of the degree. These proportions and the corresponding chi-squares are shown in Table 4 below.

By this measure, Biological Sciences drops to third place behind Education and the Social Sciences. Regardless of which measure is used, it appears that NDEA grants have a negligible effect on speeding receipt of the doctorate in the Physical Sciences and Engineering at least in so far as can be determined by this comparison of doctoral candidates who did finish quickly. In all other fields, however, the grants do appear to promote more rapid completion of the doctorate.

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[18] The chi-squares in Table II-9A have six degrees of freedom. Since chi-square measures differences between the distributions regardless of whether these differences imply a longer or shorter duration for NDEA Fellows, the large chi-square for Biological Sciences is partially attributable to the larger proportion of NDEA Fellows who required over ten years to obtain the doctorate. This complication is avoided in Table 4 which presents chi-squares with only one degree of freedom.

TABLE 4

PROPORTION OF DOCTORAL RECIPIENTS THAT RECEIVED THE DOCTORATE IN LESS THAN FIVE YEARS
(In Percentages)

Academic Area	NDEA Fellows Who Received The Doctorate	NAS Matched Group	Chi-Square[a] (d.f.=1)
Education	45.1	21.4	26.1**
Social Sciences	43.1	29.3	17.5**
Biological Sciences	46.4	34.5	8.6**
Humanities	31.9	25.3	2.7
Physical Sciences	44.2	40.8	1.1
Engineering	46.6	42.7	1.0

[a] Chi-squares are shown with one asterisk if they are significant at the .05 level and with two asterisks if they are significant at the .01 level.

Variations by geographic region in the number of years of graduate study and in the time lapse between the bachelor's degree and the doctorate are shown in Tables II-11 and II-12. Both measures show only slight variations among the various regions. NDEA Fellows in New England tend to take longest to complete the doctorate, and only in this region do they require more years of graduate study than the comparison group. Since the NDEA program purposely avoided supporting the older, well-established and well-supported programs and institutions which are to be found in New England, the comparison group in this region may consist of those in more advantageous positions both financially and with respect to the academic programs in which they are registered. In general, however, variations among the regions are not pronounced, and might be explained by regional differences in the concentration of grantees within academic areas.

NORC Doctoral Candidates

Because of the restricted nature of the group of NDEA Fellows for whom data is available on the actual duration of doctoral study, it is worth considering the expectations of doctoral candidates surveyed in the NORC study of 1961 college graduates. Since we can identify NDEA Fellows within the NORC sample, these expectations provide a basis for comparisons between these NDEA Fellows and other groups of doctoral candidates.

The expectations of doctoral candidates regarding the duration of graduate study are characteristically optimistic. Table II-13 shows the expected time lapse between bachelor's and doctorate for NORC doctoral candidates compared with the actual time lapse for doctoral recipients in the NAS random sample.[19] It can be seen that women tend to expect the doctorate to require more time than men and that doctoral candidates as a whole estimate a median of 6.6 years, compared with an actual median time lapse of 9.4 years for doctoral recipients in the NAS random sample. (The time lapse for the NAS random sample appears slightly high. Duration of doctoral study has decreased in recent years, and the median for doctorates granted between 1964 and 1966 was 8.2 years as noted earlier.)[20]

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[19] The term "doctoral candidates" is used for graduate students who were enrolled for a graduate degree in 1963-64 who stated that they intended to receive the doctorate eventually. This definition corresponds most closely with the requirements set for NDEA Fellows.

[20] For further discussion of expectations see James A. Davis, Great Aspirations. Chicago: Aldine Publishing Co., 1964, p. 5ff.

As shown in Tables II-14A and II-14B, NDEA Fellows expect to complete the doctorate more rapidly than other graduate students as a whole, but not more rapidly than other fellowship holders or research assistants. In general, fellowship students expect to receive the degree most quickly, followed by research assistants, teaching assistants, scholarship students and those with no financial aid. There is, thus, a general correlation between the amount of financial assistance a student received and his expectations regarding duration of doctoral study.

Recruitment into Teaching

Primary Postdoctoral Activity

With respect to its goal of promoting recruitment into university teaching, the NDEA Title IV Graduate Fellowship Program has been eminently successful. Over half of the NDEA Fellows who had received the doctorate reported teaching (or teaching and research) as their primary postdoctoral activity (Table III-1). NDEA Fellows were much more likely to enter teaching than the comparison group of doctoral recipients: 51 per cent of the NDEA's reported teaching as their primary postdoctoral activity, compared with 32 per cent of the matched group.

Almost nine out of ten male NDEA doctoral recipients in the Humanities and over 60 per cent of those in the Social Sciences and Education entered teaching (Tables III-2A and III-2B) In the Physical and Biological Sciences and Engineering, however, only 25 to 35 per cent reported teaching as their primary postdoctoral activity. Within each field, the proportion of NDEA grantees who became teachers was much greater than for the matched group of doctoral recipients.

As noted earlier, throughout the first four years NDEA grants were somewhat concentrated in the Southeastern region to boost educational facilities in that area. Table III-4 indicates that this effort had a payoff with respect to the supply of teachers: grantees in the Southeast tended to enter the teaching profession slightly more often than those from other regions.

Postdoctoral Employer

Two-thirds of the NDEA Fellows who received the doctorate obtained employment at a U. S. college or university (Table III-5). This was significantly more than the 53 per cent of the matched group who accepted positions in universities.[21] Nine out of ten male NDEA doctoral recipients in the Humanities and eight out of ten of those who studied Education reported employment at universities (Table III-6A). In fact, over half of the NDEA doctoral recipients in all fields except Engineering found employment at a university. Within each field, NDEA grantees were more likely to find academic employment than the doctoral recipients in the comparison group.

Just as NDEA grantees from the Southeast went into teaching most often, they also were most likely to find employment in a college or university (Table III-8). Seven out of ten reported their postdoctoral employer as a university, a record which equaled or surpassed the proportions of fellows employed in universities in all other regions of the country.

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[21] The lower proportion of NDEA Fellows accepting foreign employment reflects the fact that NDEA recipients are all U. S. citizens, while the NAS matched group presumably includes foreign nationals. Even allowing for this difference, however, the proportion of NDEA Fellows employed in colleges or universities is significantly higher.

Table III-9 combines the data on postdoctoral activity and employer to show the proportions in each field who became teachers employed at universities. The proportions range from 86 per cent of the men in the Humanities down to 22 per cent of the men in Engineering. Within each field, the proportions are substantially higher for the NDEA Fellows than for the comparison group.

The data considered above relate only to the employment undertaken immediately following receipt of the doctorate. Table III-10 presents the long-run career intentions expressed by doctoral candidates among the NORC sample of 1961 college graduates. Almost all (96%) of the NDEA Fellows indicated some sort of academic career, and 85 per cent specifically designated university teaching. They were much more likely to intend a teaching career than other fellowship students or any other group of doctoral candidates except those who were already engaged as teaching assistants.

Broadly speaking, these data suggest that while the award of the fellowship per se did not develop a strong sense of commitment to completion of the doctorate among all awardees, those who received the fellowship for three years and obtained their degree had a strong teaching commitment, even in fields where alternative sources of employment were plentiful. In this respect, the program has clearly lived up to the goals of its sponsors.

TABLES

NOTE: Throughout the tables percentages are not shown where the base is less than 20 cases; instead, the actual number of cases in each category is shown in parentheses.

I

CHARACTERISTICS OF NDEA FELLOWS

TABLE I-1

NDEA RECIPIENTS: DETAILED FIELD OF STUDY BY YEAR OF AWARD
(In Percentages)

Detailed Field of Study	Total	Year of Award			
		1959-60	1960-61	1961-62	1962-63
Humanities	25.1	26.2	27.8	25.5	21.2
English, Comparative Literature, Speech and Drama	9.5	12.0	9.3	8.6	8.8
Classics, Languages, Linguistics	10.2	8.1	11.9	10.7	9.3
All Other Humanities	5.4	6.1	6.6	6.3	2.9
Education	7.6	5.4	6.9	7.9	9.5
Social Sciences	29.0	27.1	30.3	30.1	27.8
Economics and Business Administration	7.6	7.2	8.5	7.6	6.9
History	5.2	4.6	5.1	6.1	4.8
Political Science and International Relations	5.4	6.1	4.4	5.2	6.2
Psychology	2.3	2.9	1.8	2.1	2.7
Sociology and Anthropology	2.9	1.9	3.3	3.4	2.8
All Other Social Sciences	5.5	4.4	7.3	5.7	4.4
Biological Sciences	11.0	13.0	8.5	10.1	12.9
Physical Sciences	17.8	20.3	17.2	16.8	17.7
Chemistry	4.5	5.2	4.0	4.1	5.1
Mathematics and Computer Science	6.1	8.2	6.7	5.3	5.0
Physics	5.2	6.1	4.5	4.9	5.5
All Other Physical Sciences	1.9	0.8	1.9	2.5	2.1
Engineering	9.6	8.0	9.3	9.6	10.9
Total %	100.0	100.0	100.0	100.0	100.0
(N)	(5500)	(1000)	(1500)	(1500)	(1500)

Source: Office of Education, NDEA file.

TABLE 1-2

NDEA RECIPIENTS: PROPORTION OF WOMEN BY ACADEMIC AREA, GEOGRAPHIC REGION AND YEAR OF AWARD[a]

(In Percentages)

Academic Area and Geographic Region	Total	Year of Award			
		1959-60	1960-61	1961-62	1962-63
Total	13.7 (5500)	13.4 (1000)	14.3 (1500)	12.4 (1500)	14.2 (1500)
A. Academic Area					
Humanities	24.1 (1378)	19.5 (262)	24.5 (417)	24.5 (383)	27.2 (316)
Education	19.3 (415)	27.8 (54)	20.4 (103)	12.6 (119)	20.9 (139)
Social Sciences	12.5 (1588)	13.3 (270)	13.2 (453)	11.5 (451)	12.3 (414)
Biological Sciences	14.6 (601)	16.2 (130)	17.2 (128)	10.0 (150)	15.4 (193)
Physical Sciences and Engineering	3.5 (1506)	3.9 (283)	2.5 (398)	3.0 (396)	4.7 (429)
B. Geographic Region					
New England	15.1 (405)	14.5 (69)	12.9 (101)	15.2 (125)	17.3 (110)
Mideast	19.2 (886)	18.2 (143)	21.5 (242)	15.6 (244)	21.0 (257)
Southeast	11.2 (1272)	12.0 (274)	10.9 (338)	10.1 (346)	11.8 (314)
Great Lakes	14.7 (830)	15.1 (106)	15.6 (224)	13.5 (237)	14.8 (263)
Plains	11.8 (594)	11.0 (100)	12.4 (170)	10.4 (163)	13.0 (161)
Southwest	9.4 (489)	6.5 (93)	8.2 (134)	10.5 (124)	11.6 (138)
Rocky Mountain	10.5 (334)	9.1 (77)	9.7 (93)	9.8 (82)	13.4 (82)
Far West	15.6 (678)	18.2 (137)	18.3 (197)	14.6 (178)	11.4 (166)

Source: Office of Education, NDEA file.

[a] The table refers to all NDEA recipients. Percentages indicate the proportion of women among NDEA recipients within each subgroup. The bases are shown in parentheses under each per cent. Thus, for example, the second column of the second row indicates that 19.5 per cent of the 262 1959-60 grantees in the humanities were women.

TABLE I-3

NDEA RECIPIENTS: MARITAL STATUS AND AGE BY YEAR OF AWARD
(In Percentages)

Marital Status and Age	Total	Year of Award			
		1959-60	1960-61	1961-62	1962-63
A. Per cent Married					
All Fellows	57.6	53.1	58.5	58.7	58.4
Males	61.6	56.0	61.9	62.3	64.2
Females	34.1	35.1	37.9	34.8	29.1
B. Age					
21 or less	10.5	12.8	9.4	10.3	10.4
22	32.6	32.0	32.9	29.3	35.9
23	13.3	13.0	12.6	15.0	12.4
24	7.0	6.3	6.6	8.1	6.6
25-29	24.2	27.5	25.9	23.5	20.8
30 or more	10.9	7.7	11.1	11.7	12.0
Not Ascertained	1.6	0.7	1.5	2.1	2.0
Median Age, All Fellows	23.5	23.4	23.6	23.6	23.4
Median Age, Males	23.6	23.6	23.7	23.8	23.4
Median Age, Females	22.8	22.5	22.3	22.8	22.8
Bases: All Fellows	5500	1000	1500	1500	1500
Males	4736	865	1285	1311	1275
Females	752	134	214	188	216
Sex Not Ascertained	12	1	1	1	9

Source: Office of Education, NDEA file.

NDEA RECIPIENTS AND NORC COMPARISON GROUPS: BACKGROUND CHARACTERISTICS--SEX, MARITAL STATUS AND ACADEMIC AREA
(In Percentages)

Background Characteristics	NDEA RECIPIENTS	NORC RESPONDENTS: DOCTORAL CANDIDATES AMONG 1961 GRADUATES BY FINANCIAL SUPPORT[a]						
		Total NORC	NDEA Fellowships	Other Fellowships	Scholarship	Teaching Assistantship	Research Assistantship	No Financial Aid
Sex								
Male	86.3	83.9	87.5	88.6	83.3	82.6	92.3	78.9
Female	13.7	16.1	12.5	11.4	16.7	17.4	7.7	21.1
Marital Status[b]								
Single	42.4	45.0	41.0	49.8	39.5	50.7	41.5	42.8
Married	57.6	55.0	59.0	50.2	60.5	49.3	58.5	57.2
Academic Area								
Humanities	25.1	17.2	24.3	11.7	23.7	26.7	1.2	18.8
Education	7.6	21.4	7.6	5.9	25.1	7.2	7.7	40.3
Social Sciences	28.9	21.0	35.4	22.3	21.1	20.5	15.7	21.7
Biological Sciences	11.0	10.2	4.2	16.7	4.4	13.4	21.7	3.5
Physical Sciences	17.8	20.0	17.4	30.1	11.7	26.1	39.6	8.1
Engineering	9.6	8.9	9.7	12.5	13.7	5.6	13.2	5.9
Not Ascertained	-	1.3	1.4	0.8	0.3	0.5	0.9	1.7
Base (N)[c]	(5500)	(3644)	(144)	(622)	(342)	(643)	(508)	(1354)

Source: Office of Education, NDEA file and NORC Study of 1961 College Graduates.

[a] NORC respondents who were enrolled for a graduate degree in 1963-64 and expected to obtain a doctorate eventually were considered "doctoral candidates." "Fellowship" indicates a grant over and above tuition and fees, while "scholarship" implies a grant less than or equal to tuition and fees. The "Total NORC" group includes 31 respondents for whom financial support was not ascertained.

[b] Marital Status at the time of award for NDEA Recipients and marital status in 1964 (three years after graduation) for NORC respondents. "Single" includes widowed or divorced.

[c] NORC bases are weighted totals. There are actually 2,231 doctoral candidates among the NORC respondents, weighted to represent a total of 3,644.

TABLE I-5

NDEA DOCTORATES AND COMPARISON GROUPS:[a] DETAILED FIELD OF STUDY
(In Percentages)

Detailed Field of Study	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)	NAS Random Sample
Humanities	15.6	8.3	16.9
English, Comparative Literature, Speech and Drama	5.8	3.9	9.1
Classics, Languages, Linguistics	5.3	2.0	0.9
All Other Humanities	4.5	2.4	6.9
Education	11.8	6.9	18.4
Social Sciences	23.0	19.0	18.7
Economics and Business Administration	7.1	4.3	1.3
History	3.4	2.8	3.5
Political Science and International Relations	4.1	1.7	2.6
Psychology	2.3	7.6	7.4
Sociology and Anthropology	2.7	2.1	2.6
All Other Social Sciences	3.4	0.5	1.3
Biological Sciences	13.9	18.3	14.3
Physical Sciences	22.0	32.9	24.3
Chemistry	7.3	15.7	10.8
Mathematics and Computer Science	7.9	6.1	2.6
Physics	4.9	8.5	6.1
All Other Physical Sciences	2.0	2.6	4.8
Engineering	13.7	14.6	7.4
Total %	100.0	100.0	100.0
(N)	(1668)	(3265)	(231)

Source: NAS Survey of Earned Doctorates, Item M.

[a] NDEA fellows who received the doctorate by June 1966 are a special group, consisting of those who completed their work quickly. The NAS matched group was selected to provide a similar group of doctoral recipients by matching sex and the year in which the bachelor's degree was received. The NAS random sample reflects the characteristics of all doctoral recipients between January 1960 and June 1966. For further information on these groups, see "Methodology," pp. 5 to 12.

TABLE I-6

NDEA DOCTORATES AND COMPARISON GROUPS: GEOGRAPHIC REGION[a]
(In Percentages)

Geographic Region	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)	NAS Random Sample
New England	7.5	13.2	10.0
Mideast	12.1	20.8	24.3
South East	25.1	10.0	14.7
Great Lakes	14.9	24.8	21.6
Plains	10.8	8.9	8.2
South West	10.2	5.6	6.9
Rocky Mountain	8.0	2.9	3.9
Far West	11.4	13.8	10.4
Total %	100.0	100.0	100.0
(N)	(1670)	(3265)	(231)

Source: NAS Survey of Earned Doctorates, Item M.

[a] Geographic Region refers to the location of the doctoral institution. Regions are U. S. Office of Business Economics codes, not Office of Education administrative regions.

TABLE I-7

NDEA DOCTORATES AND COMPARISON GROUPS: SEX AND NUMBER OF DEPENDENTS
(In Percentages)

Sex and Number of Dependents	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)	NAS Random Sample
A. Sex[a]			
Male	93.7	93.6	88.3
Female	6.3	6.4	11.7
Total %	100.0	100.0	100.0
(N)	(1670)	(3265)	(231)
B. Number of Dependents[b]			
None	16.0	21.6	17.7
One	17.5	21.4	15.6
Two	17.1	18.4	18.7
Three	17.6	15.2	17.7
Four	11.0	5.3	7.8
Five or more	6.9	2.5	7.8
Not Ascertained	13.9	15.6	14.7
Total %	100.0	100.0	100.0
(N)	(1670)	(3265)	(231)

[a] Source: NAS Survey of Earned Doctorates, Item F.

[b] Number of dependents at the time of receipt of the doctorate (excluding "self"), from the NAS Survey, Item H.

TABLE I-8

NDEA DOCTORATES AND COMPARISON GROUPS: FATHER'S AND MOTHER'S EDUCATION
(In Percentages)

Father's and Mother's Education	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)	NAS Random Sample
A. Father's Education			
Six years or less	8.0	7.2	7.8
7-8 years Grammar School	17.8	12.9	12.1
Some High School	12.4	9.7	9.5
High School Graduate	20.7	19.2	13.0
Some College	12.3	11.2	6.5
College Graduate	12.7	14.8	11.3
Graduate Study	10.8	13.2	6.5
Not Ascertained	5.3	11.8	33.3
Total %	100.0	100.0	100.0
(N)	(1670)	(3265)	(231)
Median years of Education	11.4	11.8	11.3
B. Mother's Education			
Six years or less	3.9	4.7	5.2
7-8 years Grammar School	13.3	11.9	10.4
Some High School	11.0	8.7	10.8
High School Graduate	30.5	28.8	21.2
Some College	17.7	15.5	9.1
College Graduate	13.5	13.6	6.5
Graduate Study	3.8	4.4	2.2
Not Ascertained	6.3	12.4	34.6
Total %	100.0	100.0	100.0
(N)	(1670)	(3265)	(231)
Median years of Education	11.6	12.0	11.3

Source: NAS Survey of Earned Doctorates, Item U.

TABLE I-9

NDEA DOCTORATES AND COMPARISON GROUPS: TYPE OF HIGH SCHOOL AND SIZE OF GRADUATING CLASS

(In Percentages)

Type of High School and Size of Graduating Class	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)	NAS Random Sample
A. Type of High School			
Public	85.8	80.1	82.3
Private, Denominational	8.3	11.4	9.5
Private, Nondenominational	3.9	6.2	6.5
Not Ascertained	2.0	2.3	1.7
Total %	100.0	100.0	100.0
(N)	(1670)	(3265)	(231)
B. Size of Graduating Class			
Under 20	5.7	5.0	9.1
20-39	11.0	12.0	14.3
40-59	10.0	9.1	8.7
60-99	12.8	12.2	13.0
100-199	18.2	19.2	17.3
200-499	28.3	26.2	23.8
500 and over	10.2	12.4	9.5
Not Ascertained	3.8	3.9	4.3
Total %	100.0	100.0	100.0
(N)	(1670)	(3265)	(231)
Median	147	151	116

Source: NAS Survey of Earned Doctorates, Items K and J.

TABLE I-10

NDEA DOCTORATES AND COMPARISON GROUPS: EMPLOYMENT STATUS DURING THE YEAR PRECEDING RECEIPT OF THE DOCTORATE
(In Percentages)

Employment Status During the Year Preceding Receipt of the Doctorate	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)	NAS Random Sample
On Fellowship	33.9	25.7	11.7
Employed Part-time (Including Graduate Assistants)	22.2	31.5	20.3
Employed Full-time			
At a college or university	20.5	14.8	25.1
Elsewhere	5.2	5.2	12.6
Working on a Research Grant	6.4	9.1	3.5
Student, not employed	9.2	5.3	4.8
Other	0.4	0.7	-
Not Ascertained	2.2	7.7	22.0
Total %	100.0	100.0	100.0
(N)	(1670)	(3265)	(231)

Source: NAS Survey of Earned Doctorates, Item Q.

TABLE I-11

NDEA DOCTORATES AND COMPARISON GROUPS: TOTAL YEARS OF PROFESSIONAL WORK EXPERIENCE PRIOR TO RECEIPT OF THE DOCTORATE

(In Percentages)

Total Years of Professional Work Experience (Full-Time or Full-Time Equivalent)	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)	NAS Random Sample
None	16.3	18.0	7.8
Less than 1 year	21.0	19.2	9.1
1-1.9 years	21.7	17.6	11.3
2-2.9 years	13.2	13.2	8.7
3-3.9 years	9.0	9.4	9.1
4-5.9 years	7.4	9.3	10.0
6-7.9 years	3.2	4.0	10.0
8-9.9 years	2.2	2.2	10.4
10-14.9 years	2.5	2.5	12.1
15 years or more	1.1	1.3	9.5
Not Ascertained	2.5	3.6	2.2
Total %	100.0	100.0	100.0
(N)	(1670)	(3265)	(231)
Median Number Years Professional Work Experience	1.5	1.6	4.6

Source: NAS Survey of Earned Doctorates, Item P.

TABLE I-12

NDEA DOCTORATES AND COMPARISON GROUPS: PROSPECTS AND ARRANGEMENTS FOR PROFESSIONAL FUTURE

(In Percentages)

Prospects and Arrangements for Professional Future	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)	NAS Random Sample
Am seeking employment but have no specific prospects	3.4	4.6	4.3
Am negotiating with a specific employer, or more than one	6.5	8.0	6.1
Have signed contract or made definite commitment (other than categories below)	59.0	49.5	44.6
Returning to, or continuing in, predoctoral employment	14.3	13.3	32.9
Military service-active duty	3.2	3.2	1.3
Have postdoctoral fellowship, sabbatical leave, or equivalent arrangement	10.2	17.7	9.1
Other	0.1	0.2	-
Not Ascertained	3.3	3.5	1.7
Total %	100.0	100.0	100.0
(N)	(1670)	(3265)	(231)

Source: NAS Survey of Earned Doctorates, Item Q.

II.

COMPLETION OF THE DOCTORATE

TABLE II-1

TENURE STATUS AND COMPLETION OF DOCTORATE BY YEAR OF AWARD
(In Percentages)

Year of Award	All NDEA Fellows Who:			NDEA'S Who Completed Tenure Who:	
	Base (N)	Resigned	Completed Doctorate	Base (N)	Completed Doctorate
Total	(5500)	25.0	30.3	(4122)	38.6
1959-60	(1000)	28.9	37.3	(711)	49.6
1960-61	(1500)	24.9	37.0	(1127)	46.5
1961-62	(1500)	23.2	30.4	(1152)	37.9
1962-63	(1500)	24.5	19.1	(1132)	24.5

Source: Office of Education, NDEA file.

TABLE II-2

REASONS FOR RESIGNATION OF FELLOWSHIP BY YEAR OF AWARD[a]
(In Percentages)

Reason for Resignation	Total	Year of Award			
		1959-60	1960-61	1961-62	1962-63
Personal reasons	32.5	33.6	28.4	26.5	41.6
Change of career	22.5	18.0	24.6	23.9	22.6
Academic reasons	14.9	17.6	17.2	13.2	12.2
Changed school	10.8	8.3	8.1	14.0	12.5
Same field	6.5	3.5	6.2	8.0	7.9
Different field	4.3	4.8	1.9	6.0	4.6
Changed field, same school	0.4	0.7	0.8	-	-
Reason not ascertained	18.9	21.8	20.9	22.4	11.1
Total[a] %	100.0	100.0	100.0	100.0	100.0
(N)	(1378)	(289)	(373)	(348)	(368)

Source: Office of Education, NDEA file.

[a] Based on the number of NDEA fellows who resigned their fellowships.

TABLE II-3A

TENURE STATUS AND COMPLETION OF DOCTORATE BY BACKGROUND CHARACTERISTICS AND YEAR OF AWARD--1959-60
(In Percentages)

Background Characteristics	All NDEA Fellows Who:			NDEA'S Who Completed Tenure Who:	
	Base (N)	Resigned	Completed Doctorate	Base (N)	Completed Doctorate
MEN: Total	(865)	26.2	40.7	(638)	52.2
Marital Status					
Married	(484)	22.9	44.6	(373)	56.0
Single	(381)	30.4	35.7	(265)	46.8
Age					
19-24 years	(535)	26.0	41.7	(396)	52.3
25-29 years	(259)	25.1	40.2	(194)	52.6
30 years and over	(66)	30.3	38.9	(46)	52.2
Academic Area					
Humanities	(211)	25.5	32.7	(157)	42.7
Education	(39)	15.4	56.4	(33)	66.7
Social Sciences	(234)	24.6	35.0	(174)	44.8
Biological Sciences	(109)	23.8	46.8	(83)	59.0
Physical Sciences	(193)	32.2	46.2	(131)	61.1
Engineering	(79)	24.0	49.3	(60)	61.7
WOMEN: Total	(134)	46.3	14.9	(72)	26.4
Marital Status					
Married	(47)	53.2	12.8	(22)	22.7
Single	(87)	42.5	16.1	(50)	28.0
Age					
19-24 years	(106)	49.1	14.2	(55)	27.3
25-29 years	(16)	43.8	25.0	(9)	(3)
30 years and over	(11)	(4)	(1)	(7)	(1)
Academic Area					
Humanities	(51)	47.1	7.8	(27)	14.8
Education	(15)	(4)	(5)	(11)	(5)
Social Sciences	(36)	52.8	13.9	(17)	(4)
Biological Sciences	(21)	42.9	23.8	(12)	(5)
Physical Sciences	(10)	(6)	(-)	(4)	(-)
Engineering	(1)	(1)	(-)	(-)	(-)

Source: Office of Education, NDEA file.

TABLE II-3B

TENURE STATUS AND COMPLETION OF DOCTORATE BY BACKGROUND CHARACTERISTICS AND YEAR OF AWARD--1960-61

(In Percentages)

Background Characteristics	All NDEA Fellows Who:			NDEA'S Who Completed Tenure Who:	
	Base (N)	Resigned	Completed Doctorate	Base (N)	Completed Doctorate
MEN: Total	(1285)	24.0	39.9	(977)	49.4
Marital Status					
Married	(796)	20.0	45.6	(637)	54.0
Single	(489)	30.5	30.7	(340)	40.9
Age					
19-24 years	(775)	24.5	37.8	(585)	46.5
25-29 years	(354)	23.2	44.4	(272)	55.5
30 years and over	(139)	22.3	41.0	(108)	50.9
Academic Area					
Humanities	(316)	22.1	26.8	(246)	33.3
Education	(82)	12.2	62.2	(72)	70.8
Social Sciences	(393)	27.5	31.1	(285)	39.6
Biological Sciences	(106)	21.7	58.5	(83)	71.1
Physical Sciences	(248)	24.2	52.0	(188)	63.8
Engineering	(140)	26.4	47.5	(103)	56.3
WOMEN: Total	(214)	30.4	19.6	(149)	27.5
Marital Status					
Married	(81)	24.7	18.5	(61)	23.0
Single	(133)	33.8	20.3	(88)	30.7
Age					
19-24 years	(147)	33.3	14.3	(98)	21.4
25-29 years	(35)	22.9	37.1	(27)	44.4
30 years and over	(28)	25.0	28.6	(21)	38.1
Academic Area					
Humanities	(101)	25.8	14.9	(75)	18.7
Education	(21)	42.9	28.6	(12)	(6)
Social Sciences	(60)	31.7	16.7	(41)	24.4
Biological Sciences	(22)	31.8	40.9	(15)	(9)
Physical Sciences	(10)	(4)	(2)	(6)	(2)
Engineering	-	-	-	-	-

Source: Office of Education, NDEA file.

TABLE II-3C

TENURE STATUS AND COMPLETION OF DOCTORATE BY BACKGROUND CHARACTERISTICS AND YEAR OF AWARD--1961-62

(In Percentages)

Background Characteristics	All NDEA Fellows Who:			NDEA'S Who Completed Tenure Who:	
	Base (N)	Resigned	Completed Doctorate	Base (N)	Completed Doctorate
MEN: Total	(1311)	22.0	33.0	(1022)	40.5
Marital Status					
Married	(816)	17.8	39.8	(671)	46.3
Single	(493)	29.0	21.5	(350)	29.1
Age					
19-24 years	(800)	23.5	29.8	(612)	36.9
25-29 years	(341)	19.9	36.4	(273)	44.0
30 years and over	(143)	20.3	42.7	(114)	51.8
Academic Area					
Humanities	(289)	17.9	17.6	(237)	21.1
Education	(104)	15.4	53.9	(88)	62.5
Social Sciences	(399)	24.3	25.1	(302)	30.5
Biological Sciences	(135)	25.9	48.9	(100)	63.0
Physical Sciences	(240)	25.8	37.1	(178)	48.9
Engineering	(144)	18.8	48.6	(117)	57.3
WOMEN: Total	(188)	31.4	12.2	(129)	17.1
Marital Status					
Married	(65)	24.6	12.3	(49)	14.3
Single	(123)	35.0	12.2	(80)	18.8
Age					
19-24 years	(141)	34.8	9.9	(92)	15.2
25-29 years	(12)	(3)	(-)	(9)	(-)
30 years and over	(32)	18.8	28.1	(26)	30.8
Academic Area					
Humanities	(94)	28.7	8.5	(67)	11.9
Education	(15)	(7)	(5)	(8)	(4)
Social Sciences	(52)	28.0	7.7	(37)	10.8
Biological Sciences	(15)	(8)	(3)	(7)	(3)
Physical Sciences	(12)	(2)	(3)	(10)	(3)
Engineering	-	-	-	-	-

Source: Office of Education, NDEA file.

TABLE II-3D

TENURE STATUS AND COMPLETION OF DOCTORATE BY BACKGROUND CHARACTERISTICS AND YEAR OF AWARD--1962-63

(In Percentages)

Background Characteristics	All NDEA Fellows Who:			NDEA'S Who Completed Tenure Who:	
	Base (N)	Resigned	Completed Doctorate	Base (N)	Completed Doctorate
MEN: Total	(1275)	22.0	21.2	(994)	27.4
Marital Status					
Married	(815)	16.4	25.0	(681)	28.9
Single	(454)	31.7	14.3	(310)	20.3
Age					
19-24 years	(813)	23.5	20.9	(622)	26.4
25-29 years	(289)	20.4	19.0	(230)	23.0
30 years and over	(153)	17.6	26.8	(126)	31.7
Academic Area					
Humanities	(230)	17.8	11.7	(189)	14.3
Education	(110)	10.9	40.0	(98)	44.9
Social Sciences	(363)	26.2	16.0	(268)	20.1
Biological Sciences	(163)	23.9	19.6	(12[illegible])	25.8
Physical Sciences	(247)	25.1	22.3	(185)	28.1
Engineering	(162)	19.7	33.3	(130)	40.0
WOMEN: Total	(216)	39.8	7.4	(130)	12.3
Marital Status					
Married	(62)	46.8	8.1	(31)	16.1
Single	(151)	37.1	7.3	(95)	11.6
Age					
19-24 years	(165)	44.8	4.2	(91)	7.7
25-29 years	(23)	26.1	13.0	(17)	(3)
30 years and over	(27)	22.2	18.5	(21)	23.8
Academic Area					
Humanities	(86)	31.4	2.3	(59)	3.3
Education	(29)	34.5	24.1	(19)	(7)
Social Sciences	(51)	52.9	5.9	(24)	12.5
Biological Sciences	(30)	46.7	13.3	(16)	(4)
Physical Sciences	(19)	(7)	(-)	(12)	(-)
Engineering	(1)	(1)	(-)	(-)	(-)

Source: Office of Education, NDEA file.

TABLE II-4

YEARS ELAPSED BETWEEN RECEIPT OF THE BACHELOR'S DEGREE AND RECEIPT OF THE DOCTORATE
(In Percentages)

Years Bachelor's to Doctorate	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)
1-3 years	9.4	6.8
4 years	25.9	25.2
5 years	22.7	27.8
6 years	15.3	16.8
7 years	7.2	8.6
8-9 years	7.9	6.3
10 or more years	10.8	8.5
Not Ascertained	0.8	-
Total %	100.0	100.0
(N)	(1670)	(3265)
Median[a]	5.6 years	5.6 years

Source: NAS Survey of Earned Doctorates, Item M.

[a] The number of years elapsed between receipt of the bachelor's degree and receipt of the doctorate was calculated by subtracting the year of the bachelor's degree from the year of the doctorate in whole years, ignoring months. In the calculation of medians, the designated year is assumed to be the lower limit of the time span for each category. Thus, for example, "four years" is taken to mean 4.0 to 4.9 years. A similar procedure was followed for deriving the number of "years of graduate study."

TABLE II-5

YEARS OF GRADUATE STUDY[a]
(In Percentages)

Years of Graduate Study	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)
1-3 years	11.7	8.1
4 years	30.2	26.8
5 years	26.3	28.2
6 years	14.7	15.6
7 years	5.4	7.4
8-9 years	3.6	4.8
10 or more years	5.2	6.1
Not Ascertained	2.9	3.0
Total %	100.0	100.0
(N)	(1670)	(3265)
Median	5.3 years	5.5 years

Source: NAS Survey of Earned Doctorate, Item M.

[a] Chi-square = 33.69**(d.f.=6). (Throughout the tables, chi-squares are shown with one asterisk if they are significant at the .05 level and with two asterisks if they are significant at the .01 level.) See footnote on Table II-4 regarding the derivation of "years of graduate study" (years elapsed from entry into graduate school until receipt of the doctorate).

TABLE II-6

YEARS ELAPSED BETWEEN HIGH SCHOOL GRADUATION AND RECEIPT OF THE DOCTORATE
(In Percentages)

Years High School to Doctorate	NDEA Fellows Who Received the Doctorate[a]	Matched Group (NAS)[a]
1-7 years	6.9	5.2
8 years	17.4	17.8
9 years	17.9	22.1
10 years	13.1	15.1
11 years	8.1	9.7
12 years	6.7	6.6
13 years	5.9	4.4
14 years	4.7	4.1
15 or more years	17.4	12.9
Not Ascertained	1.9	2.1
Total %	100.0	100.0
(N)	(1670)	(3265)
Median	10.5 years	10.3 years

Source: NAS Survey of Earned Doctorates, Items L and M.

[a] The reader should refer to the introduction for a more detailed explanation of the composition of these groups.

YEARS ELAPSED BETWEEN RECEIPT OF THE BACHELOR'S DEGREE AND RECEIPT OF THE DOCTORATE BY MAJOR ACADEMIC AREA AND SEX--MEN

(In Percentages)

Years Bachelor's to Doctorate	Total Men		Academic Area											
			Humanities		Education		Social Sciences		Biological Sciences		Physical Sciences		Engineering	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
1-3 years	9.8	6.9	9.1	3.0	8.1	2.6	10.5	7.8	11.4	4.4	11.3	7.9	7.0	10.1
4 years	26.4	25.6	21.1	21.4	16.8	9.9	26.5	19.0	25.6	26.3	29.4	30.8	34.9	29.7
5 years	22.7	28.0	17.7	20.6	6.4	14.6	23.2	29.0	23.7	30.8	30.9	31.8	26.6	24.2
6 years	15.3	17.1	21.6	13.1	16.8	14.1	15.5	18.3	14.2	17.8	11.3	15.6	14.5	21.1
7 years	7.1	8.4	10.3	16.6	10.4	13.0	6.1	8.3	5.7	9.0	6.9	6.4	4.4	6.7
8-9 years	7.6	6.1	6.9	7.0	17.3	13.5	6.4	8.0	7.1	6.0	6.9	4.2	8.3	4.6
10 or more years	10.3	7.9	11.6	18.3	28.2	32.3	11.0	9.6	12.3	5.7	3.0	3.3	3.5	3.6
Not Ascertained	0.8	-	1.7	-	-	-	0.8	-	-	-	0.3	-	1.8	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(1567)	(3055)	(232)	(229)	(173)	(192)	(362)	(564)	(211)	(546)	(362)	(1049)	(227)	(475)
Median	5.6	5.6	6.1	6.4	7.2	7.7	5.5	5.8	5.6	5.6	5.3	5.4	5.3	5.4

Source: NAS Survey of Earned Doctorates, Item M.

YEARS ELAPSED BETWEEN RECEIPT OF THE BACHELOR'S DEGREE AND RECEIPT OF THE DOCTORATE BY MAJOR ACADEMIC AREA AND SEX--WOMEN
(In Percentages)

Years Bachelor's to Doctorate	Total Women		Academic Area											
			Humanities		Education		Social Sciences		Biological Sciences		Physical Sciences		Engineering	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
1-3 years	3.0	5.7	6.9	7.3	-	-	-	9.1	4.8	3.8	-	7.7	-	-
4 years	16.8	19.4	17.1	7.3	8.7	8.8	18.2	20.0	23.8	30.2	(1)	30.7	-	-
5 years	21.8	23.8	13.8	24.4	8.7	11.8	31.8	32.7	23.8	24.5	(3)	19.2	(1)	-
6 years	16.8	13.8	20.7	17.1	13.0	8.8	22.7	18.2	9.5	13.2	(1)	7.7	-	-
7 years	9.9	11.0	10.4	12.2	13.0	11.8	9.1	1.8	9.5	15.1	-	15.4	-	(1)
8-9 years	10.9	9.6	10.4	12.2	17.4	17.7	-	10.9	19.1	1.9	-	7.8	-	-
10 or more years	19.8	16.7	20.7	19.5	34.9	41.1	18.2	7.3	9.5	11.3	-	11.5	-	-
Not Ascertained	1.0	-	-	-	4.3	-	-	-	-	-	-	-	-	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		100.0		
(N)	(101)	(210)	(29)	(41)	(23)	(34)	(22)	(55)	(21)	(53)	(5)	(26)	(1)	(1)
Median	6.3	6.1	6.6	6.6	8.5	9.3	5.7	5.6	5.9	5.7	-	5.6	-	-

Source: NAS Survey of Earned Doctorates, Item M.

TABLE II-8A

YEARS ELAPSED BETWEEN RECEIPT OF THE BACHELOR'S DEGREE AND RECEIPT OF THE DOCTORATE BY DETAILED FIELD OF STUDY: HUMANITIES--MEN ONLY
(In Percentages)

Years Bachelor's to Doctorate	Total Humanities		Detailed Field of Study: Humanities					
			English, Comparative Literature, Speech and Drama		Classics, Languages and Linguistics		All Other Humanities	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
1-3 years	9.1	3.0	5.7	1.9	11.3	4.2	10.8	4.0
4 years	21.1	21.4	19.6	14.2	21.1	29.1	23.0	26.6
5 years	17.7	20.6	20.7	27.2	15.5	10.4	16.2	17.3
6 years	21.6	13.1	27.6	12.3	16.9	16.7	18.9	12.0
7 years	10.3	16.6	10.3	18.9	8.5	12.5	12.1	16.0
8-9 years	6.9	7.0	6.9	4.7	9.9	8.3	4.1	9.4
10 or more years	11.6	18.3	6.9	20.8	15.5	18.8	13.5	14.7
Not Ascertained	1.7	-	2.3	-	1.4	-	1.4	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(232)	(229)	(87)	(106)	(71)	(48)	(74)	(75)
Median	6.1	6.4	6.1	6.5	6.1	6.4	6.0	6.2

Source: NAS Survey of Earned Doctorates, Item M.

TABLE II-8B

YEARS ELAPSED BETWEEN RECEIPT OF THE BACHELOR'S DEGREE AND RECEIPT OF THE DOCTORATE BY DETAILED FIELD OF STUDY: SOCIAL SCIENCES--MEN ONLY

(In Percentages)

Years Bachelor's to Doctorate	Total Social Sciences		Detailed Field of Study: Social Sciences											
			Economics and Business Administration		History		Political Science and International Relations		Psychology		Sociology and Anthropology		All Other Social Sciences	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
1-3 years	10.5	7.8	9.5	8.7	7.7	4.7	16.7	9.4	12.1	10.4	18.2	-	-	(1)
4 years	26.5	19.0	31.0	16.1	25.0	14.1	25.8	13.2	30.3	27.0	27.3	14.5	15.6	-
5 years	23.2	29.0	25.0	27.0	28.8	20.0	18.2	39.7	21.2	31.3	15.9	30.5	27.5	(4)
6 years	15.5	18.3	14.6	23.4	17.3	27.1	10.6	15.1	6.1	13.3	25.0	12.9	19.6	(4)
7 years	6.1	8.3	6.0	10.2	5.8	10.6	6.1	11.3	6.1	5.2	-	9.7	11.8	(1)
8-9 years	6.4	8.0	6.1	5.8	9.6	10.6	4.5	3.8	3.0	7.6	4.5	13.0	9.8	(2)
10 or more years	11.0	9.6	7.8	8.8	5.8	12.9	13.6	7.5	21.2	5.2	9.1	19.4	15.7	(4)
Not Ascertained	0.8	-	-	-	-	-	4.5	-	-	-	-	-	-	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
(N)	(362)	(564)	(116)	(137)	(52)	(85)	(66)	(53)	(33)	(211)	(44)	(62)	(51)	(16)
Median	5.5	5.8	5.4	5.9	5.6	6.4	5.3	5.7	5.4	5.4	5.3	6.4	6.4	-

Source: NAS Survey of Earned Doctorates, Item M.

TABLE II-8C

YEARS ELAPSED BETWEEN RECEIPT OF THE BACHELOR'S DEGREE AND RECEIPT OF THE DOCTORATE BY DETAILED FIELD OF STUDY: PHYSICAL SCIENCES--MEN ONLY

(In Percentages)

rs Bachelor's o Doctorate	Total Physical Sciences		Detailed Field of Study: Physical Sciences							
			Chemistry		Mathematics and Computer Science		Physics		All Other Physical Sciences	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
years	11.3	7.9	10.0	7.9	15.7	10.7	7.4	7.6	9.1	2.4
ars	29.4	30.8	31.7	37.6	36.6	33.7	16.1	21.9	24.2	11.9
ars	30.9	31.8	28.3	34.1	22.7	25.0	45.7	32.2	36.4	33.3
ars	11.3	15.6	9.2	9.5	12.5	15.8	12.3	23.4	12.1	26.2
ars	6.9	6.4	9.2	5.7	4.7	7.7	7.4	5.8	6.1	9.5
years	6.9	4.2	8.3	3.2	3.9	3.0	8.6	5.5	9.1	8.4
r more years	3.0	3.3	3.3	2.0	3.1	4.1	2.5	3.6	3.0	8.3
Ascertained	0.3	-	-	-	0.8	-	-	-	-	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(362)	(1049)	(120)	(495)	(128)	(196)	(81)	(274)	(33)	(84)
Median	5.3	5.4	5.3	5.1	4.9	5.2	5.6	5.6	5.5	6.1

rce: NAS Survey of Earned Doctorates, Item M.

TABLE II-9A

YEARS OF GRADUATE STUDY BY ACADEMIC AREA AND SEX--MEN
(In Percentages)

Years of Graduate Study	Total Men		Academic Area											
			Humanities		Education		Social Sciences		Biological Sciences		Physical Sciences		Engineering	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
1-3 years	12.1	8.2	9.1	3.9	17.9	7.3	12.2	8.6	14.7	6.1	12.4	8.7	7.9	11.5
4 years	30.9	27.3	22.8	21.4	27.2	14.1	30.9	20.7	31.7	28.4	31.8	32.1	38.7	31.2
5 years	26.2	28.2	21.1	21.0	13.9	16.1	26.2	29.1	27.5	32.0	32.6	31.4	29.5	24.2
6 years	14.3	15.8	22.8	14.0	11.0	12.5	15.5	16.5	11.4	17.4	11.3	14.6	13.7	17.9
7 years	5.3	7.4	9.9	14.0	5.8	10.4	4.4	8.9	4.3	6.2	6.1	6.2	1.3	5.5
8-9 years	3.4	4.5	3.9	7.4	8.6	10.9	3.3	5.3	1.4	4.2	2.5	2.7	2.7	3.8
10 or more years	5.0	5.7	6.5	13.5	15.0	26.6	4.7	7.6	6.6	3.7	0.8	1.8	1.8	1.9
Not Ascertained	2.8	2.9	3.9	4.8	0.6	2.1	2.8	3.4	2.4	2.0	2.5	2.5	4.4	4.0
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(1567)	(3055)	(232)	(229)	(173)	(192)	(362)	(564)	(211)	(546)	(362)	(1049)	(227)	(475)
Median	5.2	5.5	5.8	6.1	5.3	6.9	5.2	5.7	5.1	5.5	5.1	5.3	5.0	5.2
Chi-Square (d.f.=6)	35.25**		19.57**		25.08**		21.3**		30.85**		7.98		15.01*	

Source: NAS Survey of Earned Doctorates, Item M.

TABLE II-9B

YEARS OF GRADUATE STUDY BY ACADEMIC AREA AND SEX--WOMEN
(In Percentages)

Years of Graduate Study	Total Women[a]		Academic Area											
			Humanities		Education		Social Sciences		Biological Sciences		Physical Sciences		Engineering	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
1-3 years	5.0	7.6	6.9	7.3	8.7	8.8	-	9.1	4.8	5.7	-	7.8	-	-
4 years	22.8	20.0	17.3	12.1	21.8	2.9	27.3	20.0	28.5	30.2	(1)	34.6	-	-
5 years	26.6	27.2	17.3	22.0	17.4	20.6	27.3	36.4	33.2	30.2	(4)	15.4	(1)	(1)
6 years	20.8	12.4	20.7	12.2	17.4	8.8	36.4	12.7	14.3	13.1	-	15.4	-	-
7 years	6.9	7.1	13.8	9.8	8.7	5.9	-	1.8	4.8	11.3	-	7.7	-	-
8-9 years	5.0	9.0	6.8	9.8	4.3	14.7	4.5	9.1	4.8	1.9	-	15.3	-	-
10 or more years	7.9	12.9	10.3	19.5	17.4	32.4	-	7.3	4.8	5.7	-	3.8	-	-
Not Ascertained	5.0	3.8	6.9	7.3	4.3	5.9	4.5	3.6	4.8	1.9	-	-	-	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	-	-
(N)	(101)	(210)	(29)	(41)	(23)	(34)	(22)	(55)	(21)	(53)	(5)	(26)	(1)	(1)
Median	5.7	5.8	6.3	6.4	5.0	7.0	5.8	5.6	5.4	5.4	-	5.5	-	-

Source: NAS Survey of Earned Doctorates, Item M.

[a] Chi-Square for total women = 7.14 (d.f.=6).

TABLE II-10A

YEARS OF GRADUATE STUDY BY DETAILED FIELD OF STUDY: HUMANITIES--MEN ONLY

(In Percentages)

Years of Graduate Study	Total Humanities		Detailed Field of Study: Humanities					
			English, Comparative Literature, Speech and Drama		Classics, Languages and Linguistics		All Other Humanities	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
1-3 years	9.1	3.9	5.7	2.8	11.3	4.2	10.7	5.3
4 years	22.8	21.4	21.8	17.9	24.0	22.8	23.0	25.3
5 years	21.1	21.0	31.1	27.3	15.4	14.6	14.9	16.0
6 years	22.8	14.0	25.4	15.1	16.9	12.5	25.7	13.3
7 years	9.9	14.0	8.0	14.2	9.9	12.5	12.2	14.7
8-9 years	3.9	7.4	1.2	7.6	8.4	8.4	2.7	6.7
10 or more years	6.5	13.5	3.4	13.2	8.5	16.7	8.1	12.0
Not Ascertained	3.9	4.8	3.4	1.9	5.6	8.3	2.7	6.7
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(232)	(229)	(87)	(106)	(71)	(48)	(74)	(75)
Median	7.8	6.1	5.7	6.1	5.8	6.3	6.0	6.0

Source: NAS Survey of Earned Doctorates, Item N.

TABLE II-10B

YEARS OF GRADUATE STUDY BY DETAILED FIELD OF STUDY: SOCIAL SCIENCES--MEN ONLY
(In Percentages)

Years of Graduate Study	Total Social Sciences		Detailed Field of Study: Social Sciences											
			Economics and Business Administration		History		Political Science and International Relations		Psychology		Sociology and Anthropology		All Other Social Sciences	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
1-3 years	12.2	8.6	9.5	10.9	9.6	4.7	19.7	9.4	15.2	10.9	18.2	-	3.9	(1)
4 years	30.9	20.7	36.1	16.8	23.1	14.1	24.3	15.1	42.4	30.3	31.7	16.1	27.5	-
5 years	26.2	29.1	27.6	29.3	32.8	27.1	21.2	34.0	24.2	28.0	15.9	32.4	33.4	(4)
6 years	15.5	16.5	14.7	18.2	21.2	25.8	12.1	13.1	6.1	12.3	20.5	14.5	17.6	(4)
7 years	4.4	8.9	4.3	9.5	3.8	8.2	6.1	13.2	-	7.1	-	11.3	9.8	(1)
8-9 years	3.3	5.3	2.6	2.2	5.7	8.3	4.5	5.7	6.0	4.3	2.3	8.0	-	(3)
10 or more years	4.7	7.6	2.6	7.3	3.8	10.6	3.0	5.7	6.1	4.7	9.1	14.5	7.8	(2)
Not Ascertained	2.8	3.4	2.6	5.8	-	1.2	9.1	3.8	-	2.4	2.3	3.2	-	(1)
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-
(N)	(362)	(564)	(116)	(137)	(52)	(85)	(66)	(53)	(33)	(211)	(44)	(62)	(51)	(16)
Median	5.2	5.7	5.1	5.7	5.5	6.1	5.1	5.7	4.8	5.3	5.0	6.0	5.6	-

Source: NAS Survey of Earned Doctorates, Item M.

TABLE II-10C

YEARS OF GRADUATE STUDY BY DETAILED FIELD OF STUDY: PHYSICAL SCIENCES--MEN ONLY

(In Percentages)

Years of duate Study	Total Physical Sciences		Detailed Field of Study: Physical Sciences							
			Chemistry		Mathematics and Computer Science		Physics		All Other Physical Sciences	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
years	12.4	8.7	10.0	8.7	16.4	12.2	8.7	8.0	15.2	2.4
ears	31.8	32.1	40.9	39.0	36.7	36.6	14.8	21.9	21.1	14.3
ears	32.6	31.4	28.3	34.0	24.2	20.9	49.4	33.2	29.4	34.5
ears	11.3	14.6	10.0	9.7	12.5	13.3	12.3	20.8	9.1	26.2
ears	6.1	6.2	4.2	4.0	4.7	7.7	11.1	6.9	6.1	13.1
years	2.5	2.7	-	1.6	1.6	2.6	2.5	4.1	6.1	6.0
or more years	0.8	1.8	0.8	1.0	1.6	2.6	-	2.2	-	3.6
Ascertained	2.5	2.5	3.3	2.0	2.3	4.1	1.2	2.9	3.0	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(362)	(1049)	(120)	(495)	(128)	(196)	(81)	(274)	(33)	(84)
Median	5.1	5.3	4.9	5.0	4.9	5.0	5.5	5.6	5.3	6.0

rce: NAS Survey of Earned Doctorates, Item M.

YEARS OF GRADUATE STUDY BY GEOGRAPHIC REGION
(In Percentages)

Years of Graduate Study	Total		Geographic Region															
			New England		Mideast		South East		Great Lakes		Plains		South West		Rocky Mountain		Far West	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
1-3 years	11.7	8.1	4.8	6.8	5.9	8.8	13.4	9.8	12.1	8.1	14.4	8.5	15.2	7.7	15.0	7.3	10.0	7.5
4 years	30.3	26.8	25.6	25.3	33.2	27.4	30.4	28.6	33.5	26.6	28.3	27.6	29.8	23.7	30.8	33.3	27.4	25.9
5 years	26.2	28.1	32.0	28.7	28.2	27.4	27.5	26.5	21.4	29.1	26.3	24.4	28.2	28.6	19.5	25.0	27.4	30.9
6 years	14.7	15.7	19.2	15.3	16.3	14.8	15.2	13.5	13.3	15.6	18.3	15.8	10.5	17.0	12.8	14.6	12.6	17.7
7-years	5.4	7.4	7.2	7.2	4.5	7.2	5.0	6.8	5.6	6.6	4.4	9.6	6.4	9.9	7.5	7.3	4.2	7.5
8-9 years	3.6	4.8	1.6	3.5	2.0	5.5	3.3	5.2	4.8	5.1	2.8	7.2	5.8	3.8	3.1	5.2	4.2	3.0
10 or more	5.2	6.1	6.4	3.7	4.0	7.1	3.8	7.4	8.5	6.4	3.3	5.5	2.9	8.2	7.5	6.3	6.8	5.1
Not Ascertained	2.9	3.0	3.2	9.5	5.9	1.8	1.4	2.2	0.8	2.5	2.2	1.4	1.2	1.1	3.8	1.0	7.4	2.4
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(1670)	(3265)	(125)	(430)	(202)	(679)	(421)	(325)	(248)	(809)	(180)	(291)	(171)	(182)	(133)	(96)	(190)	(453)
Median	5.3	5.5	5.6	5.5	5.3	5.5	5.2	5.4	5.2	5.5	5.2	5.5	5.2	5.6	5.1	5.4	5.3	5.5

Source: NAS Survey of Earned Doctorates, Item M.

TABLE II-12

YEARS ELAPSED BETWEEN RECEIPT OF THE BACHELOR'S DEGREE AND RECEIPT OF THE DOCTORATE BY GEOGRAPHIC REGION

(In Percentages)

Years Bachelor's to Doctorate	Total		Geographic Region															
			New England		Mideast		South East		Great Lakes		Plains		South West		Rocky Mountain		Far West	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
1-3 years	9.4	6.8	5.6	6.9	5.9	7.4	10.8	7.1	9.7	7.0	11.6	7.9	10.5	6.0	11.3	3.1	7.9	5.9
4 years	25.8	25.2	24.0	28.1	29.3	26.4	25.7	27.3	27.8	24.0	26.5	23.4	24.5	22.5	22.6	26.0	23.7	23.4
5 years	22.7	27.7	26.4	30.3	25.2	25.5	22.9	26.8	20.6	30.0	24.9	21.9	21.1	26.4	16.5	31.2	23.7	28.9
6-years	15.4	16.9	19.2	16.7	14.9	16.6	15.5	14.2	13.7	17.1	17.1	18.6	12.3	15.9	15.0	12.5	16.3	19.0
7 years	7.2	8.6	8.0	7.9	6.4	6.5	7.4	7.7	6.5	7.0	6.6	10.3	7.6	11.5	11.3	12.5	5.8	9.7
8-9 years	7.9	6.3	6.4	5.4	7.9	6.5	8.5	7.1	7.2	6.1	5.0	9.3	11.1	5.5	8.3	8.4	7.9	4.9
10 or more	10.8	8.5	9.6	4.7	7.9	9.1	9.0	9.8	14.5	8.8	8.3	8.6	12.9	12.2	15.0	6.3	11.6	8.2
Not Ascertained	0.8	-	0.8	-	2.5	-	0.2	-	-	-	-	-	-	-	-	-	3.2	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(1670)	(3265)	(125)	(430)	(202)	(679)	(420)	(325)	(248)	(809)	(181)	(291)	(171)	(182)	(133)	(96)	(190)	(453)
Median	5.6	5.7	5.8	5.5	5.5	5.6	5.6	5.6	5.6	5.6	5.5	5.9	5.7	5.8	6.0	5.7	5.7	5.7

Source: NAS Survey of Earned Doctorates, Item M.

TABLE II-13

NORC DOCTORAL CANDIDATES AND NAS RANDOM SAMPLE: EXPECTED TIME LAPSE BETWEEN BACHELOR'S DEGREE AND DOCTORATE COMPARED WITH ACTUAL TIME LAPSE[a]

(In Percentages)

Time Lapse Bachelor's To Doctorate	NAS Random Sample: Actual Time Lapse	NORC: Expected Time Lapse		
		Total	Men	Women
3 or less years	1.7	2.7	2.8	2.6
4 years	9.1	18.9	19.9	13.8
5 years	8.7	20.5	21.9	13.9
6 years	8.2	14.1	14.6	11.3
7 years	9.1	9.0	8.6	10.6
8 years	9.5	7.9	7.3	11.0
9 years	8.7	9.0	8.9	9.2
10 or more years	44.6	10.7	10.0	14.5
Not Ascertained	0.4	7.2	6.1	13.1
Total %	100.0	100.0	100.0	100.0
(N)	(231)	(3605)[b]	(3031)	(574)
Median	9.4	6.6	6.2	7.2

Source: NAS Survey of Earned Doctorates, Item M and NORC Study of 1961 College Graduates.

[a] The expectations of doctoral candidates among 1961 graduates reported in the NORC 1964 survey are compared with the actual time lapse for doctoral recipients between January 1960 and June 1966 recorded in the NAS register.

[b] There are a weighted total of 3644 NORC respondents who graduated in 1961, were enrolled for a graduate degree in 1963-64, and intended to obtain a doctorate ultimately. Thirty-nine respondents who did not specify their field of study are excluded from this and the following table.

TABLE II-14A

NORC DOCTORAL CANDIDATES[a]: EXPECTED TIME LAPSE BETWEEN RECEIPT OF THE BACHELOR'S DEGREE AND RECEIPT OF THE DOCTORATE BY FINANCIAL SUPPORT AND SEX--MEN

(In Percentages)

Expected Years Bachelor's to Doctorate	Total Men[b]	Financial Support[c]					
		NDEA Fellowship	Other Fellowships	Scholarship	Teaching Assistantship	Research Assistantship	No Financial Aid
-3 years	2.8	2.4	9.1	0.4	1.1	4.5	0.3
years	19.9	38.4	43.6	4.9	23.7	33.4	1.8
years	21.8	36.0	22.4	14.1	37.5	35.8	7.9
years	14.6	14.4	8.8	17.3	18.3	12.7	15.9
years	8.6	0.8	2.7	10.9	5.7	6.5	14.7
years	7.3	0.8	2.0	13.4	6.8	1.9	11.5
years	8.9	0.8	4.6	11.6	2.6	2.2	17.6
or more years	10.0	6.4	3.3	16.8	3.4	2.4	18.6
Ascertained	6.1	-	3.5	10.6	0.9	0.6	11.7
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(3031)	(125)	(548)	(284)	(529)	(464)	(1054)
Median	6.2	5.3	4.9	7.7	5.7	5.3	8.3

rce: NORC Study of 1961 College Graduates.

[a] As noted previously, 1961 graduates from the NORC survey who were enrolled for a duate degree in 1963-64 and expected to obtain a doctorate eventually were considered ctoral candidates." Thirty-nine respondents who did not specify their field of study excluded from this table.

[b] The "Total Men" group includes 27 respondents for whom financial support was not ertained.

[c] "Fellowship" indicates a grant over and above tuition and fees, while "scholarship" lies a grant less than or equal to tuition and fees.

TABLE II-14B

NORC DOCTORAL CANDIDATES[a]: EXPECTED TIME LAPSE BETWEEN RECEIPT OF THE BACHELOR'S DEGREE AND RECEIPT OF THE DOCTORATE BY FINANCIAL SUPPORT AND SEX--WOMEN

(In Percentages)

Expected Years Bachelor's to Doctorate	Total Women[b]	Financial Support					
		NDEA Fellowship	Other Fellowships	Scholarship	Teaching Assistantship	Research Assistantship	No Financial Aid
years	2.6	-	4.3	1.8	2.7	2.6	2.5
ears	13.8	29.4	34.2	15.8	15.3	43.6	2.5
ears	13.9	47.1	30.0	1.8	29.8	25.6	2.5
ears	11.3	17.6	10.0	14.0	15.3	15.4	7.6
ears	10.6	-	10.0	10.5	9.0	7.7	12.6
ears	11.0	5.9	2.9	10.5	7.2	5.1	15.9
ears	9.2	-	2.9	17.5	2.7	-	13.7
or more years	14.5	-	4.3	19.3	6.3	-	22.5
Ascertained	13.1	-	1.4	8.8	11.7	-	20.2
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(574)	(17)	(70)	(57)	(111)	(39)	(277)
Median	7.2	5.4	5.4	8.2	5.9	5.2	8.8

rce: NORC Study of 1961 College Graduates.

[a] See footnotes on preceding page.

[b] The "Total Women" group includes three respondents for whom financial support not ascertained.

III.

RECRUITMENT INTO TEACHING

TABLE III-1

PRIMARY POSTDOCTORAL ACTIVITY[a]
(In Percentages)

Primary Postdoctoral Activity	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)
Research	22.5	28.7
Teaching	47.3	27.1
Research and Teaching	4.0	4.5
Administration	2.5	1.9
Professional Services	1.1	2.3
Fellowship	9.9	16.3
Other	4.1	4.5
Not Ascertained	8.6	14.7
Total %	100.0	100.0
(N)	(1670)	(3265)

Source: NAS Survey of Earned Doctorates, Item T.

[a] Chi-square = 179.70**(d.f.=6).

TABLE III-2A

PRIMARY POSTDOCTORAL ACTIVITY BY ACADEMIC AREA AND SEX--MEN
(In Percentages)

Primary Postdoctoral Activity	Total Men		Academic Area											
			Humanities		Education		Social Sciences		Biological Sciences		Physical Sciences		Engineering	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
Research	23.2	29.5	3.0	3.5	13.9	7.8	14.9	17.9	28.0	28.9	29.3	38.2	50.2	46.2
Teaching	46.5	26.5	87.6	75.5	58.4	36.5	59.0	44.3	24.6	14.7	30.1	15.3	22.0	16.5
Research and Training	4.3	4.6	0.4	1.7	2.3	2.6	5.0	5.7	6.2	5.5	5.3	4.5	4.4	4.8
Administration	2.6	1.9	0.4	0.9	12.7	20.8	2.8	1.4	1.4	0.6	0.5	0.2	0.9	0.6
Professional Services	1.0	2.1	0.4	0.4	4.6	10.4	1.9	6.9	-	0.2	-	0.2	-	0.2
Fellowship	10.1	16.3	1.3	3.5	2.3	1.6	4.7	8.2	23.2	30.0	20.4	22.4	4.8	8.6
Other	4.1	4.7	0.4	3.1	1.2	5.2	5.6	4.3	5.2	3.1	3.0	3.4	8.4	10.3
Not Ascertained	8.2	14.4	6.5	11.4	4.6	15.1	6.1	11.3	11.4	17.0	10.8	15.8	9.3	12.8
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(1567)	(3055)	(232)	(229)	(173)	(192)	(362)	(564)	(211)	(546)	(362)	(1049)	(227)	(475)

Source: NAS Survey of Earned Doctorates, Item T.

TABLE III-2B

PRIMARY POSTDOCTORAL ACTIVITY BY ACADEMIC AREA AND SEX--WOMEN
(In Percentages)

Primary Postdoctoral Activity	Total Women		Academic Area											
			Humanities		Education		Social Sciences		Biological Sciences		Physical Sciences		Engineering	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
Research	10.8	16.7	10.4	4.9	13.0	-	4.5	21.9	9.5	28.3	(2)	23.1	-	-
Teaching	58.4	35.6	75.9	68.3	43.7	50.0	31.8	30.9	28.6	18.9	(2)	11.5	(1)	-
Research and Teaching	-	2.4	-	2.4	-	-	-	5.5	-	-	-	-	-	-
Administration	2.0	1.9	-	2.4	8.7	8.8	-	-	-	-	-	-	-	-
Professional Services	3.0	4.8	-	-	4.3	8.8	9.2	12.7	-	-	-	-	-	-
Fellowship	6.9	16.7	3.4	-	4.3	-	-	12.7	23.8	39.6	-	23.1	-	(1)
Other	4.0	2.4	3.4	4.9	13.0	5.9	-	1.8	-	-	-	3.8	-	-
Not Ascertained	14.9	19.5	6.9	17.1	13.0	26.5	4.5	14.5	38.1	13.2	(1)	38.5	-	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	-	-
(N)	(101)	(210)	(29)	(41)	(23)	(34)	(22)	(55)	(21)	(53)	(5)	(26)	(1)	(1)

Source: NAS Survey of Earned Doctorates, Item T.

TABLE III-3A

PRIMARY POSTDOCTORAL ACTIVITY BY DETAILED FIELD OF STUDY: HUMANITIES--MEN ONLY
(In Percentages)

Primary Postdoctoral Activity	Total Humanities		Detailed Field of Study: Humanities					
			English, Comparative Literature, Speech and Drama		Classics, Languages and Linguistics		All Other Humanities	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
Research	3.0	3.5	1.1	0.9	2.8	8.3	5.4	4.0
Teaching	87.6	75.5	90.9	81.3	93.0	72.8	78.2	69.4
Research and Teaching	0.4	1.7	-	-	-	6.3	1.4	1.3
Administration	0.4	0.9	-	0.9	1.4	2.1	-	-
Professional Services	0.4	0.4	-	0.9	-	-	1.4	-
Fellowship	1.3	3.5	-	2.8	-	4.2	4.1	4.0
Other	0.4	3.1	1.1	3.8	-	-	-	4.0
Not Ascertained	6.5	11.4	6.9	9.4	2.8	6.3	9.5	17.3
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(232)	(229)	(87)	(106)	(71)	(48)	(74)	(75)

Source: NAS Survey of Earned Doctorates, Item T.

TABLE III-3B

PRIMARY POSTDOCTORAL ACTIVITY BY DETAILED FIELD OF STUDY: SOCIAL SCIENCES--MEN ONLY
(In Percentages)

Primary Postdoctoral Activity	Total Social Sciences		Detailed Field of Study: Social Sciences											
			Economics and Business Administration		History		Political Science and International Relations		Psychology		Sociology and Anthropology		All Other Social Sciences	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
Research	14.9	17.9	19.7	22.6	1.9	4.7	6.1	9.4	15.2	22.7	18.2	17.7	25.5	(2)
Teaching	59.0	44.3	57.8	45.2	77.0	75.3	60.5	64.1	33.2	24.2	63.7	45.2	54.8	(7)
Research and Teaching	5.0	5.7	6.0	6.6	3.8	3.5	-	3.8	9.1	5.2	6.8	9.7	5.9	(1)
Administration	2.8	1.4	1.7	1.5	3.8	2.4	6.1	3.8	-	0.5	4.5	-	-	(1)
Professional Services	1.9	6.9	0.9	0.7	-	1.2	1.5	-	15.2	17.5	-	-	-	-
Fellowship	4.7	8.2	2.6	2.2	-	-	9.1	5.7	15.2	17.1	2.3	6.5	3.9	-
Other	5.6	4.3	8.7	9.5	3.8	4.7	7.6	-	3.0	2.4	-	3.2	4.0	-
Not Ascertained	6.1	11.3	2.6	11.7	9.7	8.2	9.1	13.2	9.1	10.4	4.5	17.7	5.9	(1)
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-
(N)	(362)	(564)	(116)	(137)	(52)	(85)	(66)	(53)	(33)	(211)	(44)	(62)	(51)	(16)

Source: NAS Survey of Earned Doctorates, Item T.

TABLE III-3C

PRIMARY POSTDOCTORAL ACTIVITY BY DETAILED FIELD OF STUDY: PHYSICAL SCIENCES--MEN ONLY

(In Percentages)

Primary stdoctoral ctivity	Total Physical Sciences		Detailed Field of Study: Physical Sciences							
			Chemistry		Mathematics and Computer Science		Physics		All Other Physical Sciences	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
earch	29.3	38.2	39.2	36.8	19.5	25.5	30.9	50.0	27.2	39.3
ching	30.1	15.3	16.7	8.7	49.2	36.2	22.2	10.9	24.2	19.0
earch and eaching	5.8	4.5	0.8	1.8	10.9	11.2	3.7	4.7	9.1	3.6
inistration	0.6	0.2	0.8	0.2	-	-	1.2	0.4	-	-
fessional ervices	-	0.2	-	-	-	0.5	-	-	-	1.2
lowship	20.4	22.4	25.8	30.3	6.3	8.7	32.1	21.3	27.3	11.9
er	3.0	3.4	1.7	2.2	3.9	4.6	2.5	1.4	6.1	13.1
Ascertained	10.8	15.8	15.0	20.0	10.2	13.3	7.4	11.3	6.1	11.9
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(362)	(1049)	(120)	(495)	(128)	(196)	(81)	(274)	(33)	(84)

rce: NAS Survey of Earned Doctorates, Item T.

PRIMARY POSTDOCTORAL ACTIVITY BY GEOGRAPHIC REGION
(In Percentages)

Primary Postdoctoral Activity	Total		Geographic Region															
			New England		Mideast		South East		Great Lakes		Plains		South West		Rocky Mountain		Far West	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
Research	22.5	28.7	23.2	30.0	27.2	30.4	17.9	21.5	27.8	31.4	23.8	26.5	26.8	28.2	22.6	27.1	15.3	28.4
Teaching	47.2	27.1	44.8	28.6	44.5	25.0	51.1	30.5	47.3	26.6	46.4	27.8	47.4	31.3	39.7	32.3	47.4	23.5
Research and Teaching	4.0	4.5	3.2	5.6	3.0	3.8	3.3	2.5	3.6	3.8	4.4	6.9	1.2	2.2	5.3	3.1	8.9	6.7
Administration	2.5	1.9	-	0.7	0.5	1.8	3.3	2.5	4.8	1.9	2.2	1.7	1.8	4.4	4.5	4.2	1.1	1.5
Professional Services	1.1	2.3	2.4	0.9	0.5	2.2	1.7	4.0	2.0	2.3	-	1.7	-	1.6	1.5	6.3	1.0	2.0
Fellowship	9.9	16.3	14.4	14.9	9.4	17.8	8.6	16.0	6.9	15.9	11.6	15.5	9.4	11.0	13.5	8.3	11.1	20.8
Other	4.1	4.5	2.4	3.5	4.5	4.0	4.3	6.1	3.6	4.3	3.9	4.4	5.8	7.6	4.6	4.1	3.6	4.0
Not Ascertained	8.6	14.7	9.6	15.8	10.4	15.0	9.8	16.9	4.0	13.8	7.7	15.5	7.6	13.7	8.3	14.6	11.6	13.1
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(1670)	(3265)	(125)	(430)	(202)	(679)	(420)	(325)	(248)	(809)	(181)	(231)	(171)	(182)	(133)	(96)	(190)	(451)

Source: NAS Survey of Earned Doctorates, Item T.

TABLE III-5

POSTDOCTORAL EMPLOYER[a]
(In Percentages)

Postdoctoral Employer	NDEA Fellows Who Received the Doctorate	Matched Group (NAS)
College or University	66.0	53.4
Elementary or Secondary School	1.3	1.3
Government	5.4	5.8
Other Nonprofit Organization	2.8	3.5
Business or Industry	12.2	16.2
Foreign	3.4	9.1
Other or none	4.0	4.1
Not Ascertained	5.0	6.6
Total %	100.0	100.0
(N)	(1670)	(3265)

Source: NAS Survey of Earned Doctorates, Item R.

[a] Chi-square = 74.07** (d.f. = 6).

POSTDOCTORAL EMPLOYER BY ACADEMIC AREA AND SEX--MEN
(In Percentages)

Postdoctoral Employer	Total Men		Academic Area											
			Humanities		Education		Social Sciences		Biological Sciences		Physical Sciences		Engineering	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
College or University	65.7	52.9	90.2	79.2	81.4	65.2	75.4	62.4	58.4	55.8	56.9	48.1	34.2	30.9
Elementary or Secondary School	1.1	1.1	0.4	0.4	9.2	17.2	-	-	0.5	-	-	-	-	-
Government	5.5	5.8	-	0.4	2.9	3.6	7.4	9.2	17.5	10.1	2.2	5.0	4.0	2.7
Other Nonprofit Organization	2.7	3.1	1.3	1.3	1.2	3.6	3.6	4.1	2.8	2.7	2.8	2.7	4.0	4.4
Business or Industry	12.9	17.1	1.3	1.3	0.6	1.0	3.6	6.7	5.7	7.3	21.3	23.9	42.3	39.7
Foreign	3.3	9.4	3.0	13.1	1.2	4.7	2.8	8.2	3.3	12.5	5.8	8.0	1.8	10.3
Other or None	4.0	4.2	0.4	1.7	1.2	0.5	3.1	3.4	5.2	3.9	5.2	5.0	9.3	6.3
Not Ascertained	4.6	6.4	3.4	2.6	2.3	4.2	4.1	6.0	6.6	7.7	5.8	7.3	4.4	5.7
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(1567)	(3055)	(232)	(229)	(173)	(192)	(362)	(564)	(211)	(546)	(362)	(1049)	(227)	(475)

Source: NAS Survey of Earned Doctorates, Item R.

POSTDOCTORAL EMPLOYER BY ACADEMIC AREA AND SEX--WOMEN
(In Percentages)

Postdoctoral Employer	Total Women		Academic Area											
			Humanities		Education		Social Sciences		Biological Sciences		Physical Sciences		Engineering	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
College or University	69.3	61.4	82.8	75.8	56.7	52.9	91.0	61.9	42.8	62.3	(3)	50.1	(1)	(1)
Elementary or Secondary School	4.0	3.8	-	-	17.4	14.8	-	1.8	-	1.9	-	-	-	-
Government	4.0	3.8	-	2.4	4.3	5.8	4.5	7.2	9.5	1.9	-	-	-	-
Other Nonprofit Organization	4.0	7.6	3.4	-	4.3	8.8	4.5	12.7	4.8	9.4	-	3.8	-	-
Business or Industry	2.0	2.9	-	2.4	4.3	-	-	-	-	3.8	(1)	11.5	-	-
Foreign	5.0	5.7	6.9	2.4	4.3	5.9	-	5.5	9.5	9.4	-	3.8	-	-
Other or None	1.0	3.8	-	2.4	-	-	-	1.8	4.8	3.8	-	15.4	-	-
Not Ascertained	10.7	11.0	6.9	14.6	8.7	11.8	-	9.1	28.6	7.5	(1)	15.4	-	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	-	-
(N)	(101)	(210)	(29)	(41)	(23)	(34)	(22)	(55)	(21)	(53)	(5)	(26)	(1)	(1)

Source: NAS Survey of Earned Doctorates, Item R.

TABLE III-7A

POSTDOCTORAL EMPLOYER BY DETAILED FIELD OF STUDY: HUMANITIES--MEN ONLY

(In Percentages)

Postdoctoral Employer	Total Humanities		Detailed Field of Study: Humanities					
			English, Comparative Literature, Speech and Drama		Classics, Languages and Linguistics		All Other Humanities	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
College or University	90.2	79.2	92.1	85.9	90.2	81.2	87.8	68.0
Elementary or Secondary School	0.4	0.4	-	0.9	1.4	-	-	-
Government	-	0.4	-	0.9	-	-	-	-
Other Nonprofit Organization	1.3	1.3	1.1	0.9	2.8	-	-	2.7
Business or Industry	1.3	1.3	-	0.9	1.4	-	2.7	2.7
Foreign	3.0	13.1	2.3	6.8	1.4	16.7	5.4	20.0
Other or None	0.4	1.7	1.1	3.7	-	-	-	-
Not Ascertained	3.4	2.6	3.4	-	2.8	2.1	4.1	6.6
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(232)	(229)	(87)	(106)	(71)	(48)	(74)	(75)

Source: NAS Survey of Earned Doctorates. Item R.

POSTDOCTORAL EMPLOYER BY DETAILED FIELD OF STUDY: SOCIAL SCIENCES--MEN ONLY
(In Percentages)

Postdoctoral Employer	Total Social Sciences		Detailed Field of Study: Social Sciences											
			Economics and Business Administration		History		Political Science and International Relations		Psychology		Sociology and Anthropology		All Other Social Sciences	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
College or University	75.4	62.4	73.4	57.7	84.7	81.1	72.8	71.6	48.4	52.7	88.6	71.0	80.4	(7)
Government	7.4	9.2	6.9	5.1	1.9	2.4	10.6	1.9	15.2	17.5	2.3	4.8	9.8	(2)
Other Nonprofit Organization	3.6	4.1	3.4	2.9	-	-	6.1	3.8	9.1	7.6	4.5	1.6	-	-
Business or Industry	3.6	6.7	8.6	10.9	-	-	3.0	1.9	3.0	9.5	-	3.2	-	-
Foreign	2.8	8.2	2.6	11.7	3.8	10.6	1.5	13.2	6.1	2.8	2.3	9.7	2.0	(2)
Other or None	3.1	3.4	3.4	4.4	3.8	3.5	1.5	1.9	6.1	3.7	-	1.6	3.9	-
Not Ascertained	4.1	6.0	1.7	7.3	5.8	2.4	4.5	5.7	12.1	6.2	2.3	8.1	3.9	(1)
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-
(N)	(362)	(564)	(116)	(137)	(52)	(85)	(66)	(53)	(33)	(211)	(44)	(62)	(51)	(16)

Source: NAS Survey of Earned Doctorates, Item R.

TABLE III-7C

POSTDOCTORAL EMPLOYER BY DETAILED FIELD OF STUDY: PHYSICAL SCIENCES--MEN ONLY
(In Percentages)

Postdoctoral Employer	Total Physical Sciences		Detailed Field of Study: Physical Sciences							
			Chemistry		Mathematics and Computer Science		Physics		All Other Physical Sciences	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
ege or iversity	56.9	48.1	45.8	35.2	71.8	69.9	49.4	57.3	57.6	44.0
rnment	2.2	5.0	2.5	3.8	1.6	2.0	3.7	6.2	-	14.3
r Nonprofit ganization	2.8	2.7	0.8	1.8	2.3	4.6	6.2	2.6	3.0	3.6
ness or dustry	21.3	23.9	38.3	36.6	7.8	8.2	13.6	14.6	30.3	16.7
ign	5.8	8.0	1.7	7.9	5.5	7.7	12.3	8.0	6.1	9.5
r or None	5.2	5.0	4.2	4.6	6.3	1.5	7.4	6.9	-	8.3
Ascertained	5.8	7.3	6.7	10.1	4.7	6.1	7.4	4.4	3.0	3.6
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(362)	(1049)	(120)	(495)	(128)	(196)	(81)	(274)	(33)	(84)

ce: NAS Survey of Earned Doctorates, Item R.

TABLE III-8

POSTDOCTORAL EMPLOYER BY GEOGRAPHIC REGION
(In Percentages)

Postdoctoral Employer	Total		Geographic Region															
			New England		Mideast		South East		Great Lakes		Plains		South West		Rocky Mountain		Far West	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA	NAS
College or University	66.0	53.4	61.6	48.7	58.8	52.6	70.7	57.8	69.9	51.9	64.1	57.0	64.4	52.4	61.6	57.3	67.3	55.8
Elementary or Secondary School	1.3	1.3	1.6	0.5	-	1.8	1.0	2.2	4.4	1.0	0.6	2.1	0.6	-	2.3	4.2	-	0.7
Other Nonprofit Organization	5.4	5.8	4.0	4.2	4.5	6.2	7.6	7.0	4.0	4.9	6.7	6.2	2.9	7.6	6.1	8.3	4.8	5.5
Business or Industry	2.8	3.5	5.6	3.7	3.5	3.8	1.0	2.5	2.4	3.6	3.9	3.1	2.3	2.7	3.8	3.1	3.7	3.8
Foreign	12.2	16.2	13.6	15.1	16.8	16.9	9.5	14.2	11.7	20.2	13.3	16.6	17.5	13.3	14.1	10.4	5.8	10.2
Other or None	3.4	9.1	4.0	12.6	5.0	10.0	1.4	3.7	1.2	8.7	3.6	6.5	4.1	3.3	3.8	6.3	6.8	13.9
Not Ascertained	4.0	4.1	4.0	4.0	5.0	3.7	4.3	5.2	3.2	3.9	2.3	3.7	4.7	7.6	5.3	2.1	3.2	3.7
	5.0	6.6	5.6	11.2	6.4	5.0	4.5	7.4	3.2	5.8	5.5	4.8	3.5	7.1	3.0	8.3	8.4	6.4
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(1670)	(3265)	(125)	(430)	(202)	(679)	(420)	(325)	(248)	(809)	(181)	(291)	(171)	(182)	(133)	(96)	(190)	(453)

Source: NAS Survey of Earned Doctorates, Item R.

TABLE III-9

PROPORTION OF DOCTORAL RECIPIENTS TEACHING, PROPORTION EMPLOYED IN UNIVERSITIES AND PROPORTION TEACHING IN COLLEGES OR UNIVERSITIES BY ACADEMIC AREA AND SEX

(In Percentages)

Sex and Academic Area	Base (N)		Primary Postdoctoral Activity and Postdoctoral Employer					
			Teaching As Primary Postdoctoral Activity		College or University as Postdoctoral Employer		Teachers Employed in Colleges or Universities	
	NDEA	NAS	NDEA	NAS	NDEA	NAS	NDEA[a]	NAS
A. Men (Total)	1567	3055	46.5	26.5	65.7	52.9	41.7	23.6
Humanities	232	229	87.6	75.5	90.2	79.2	85.8	66.8
Education	173	192	58.4	36.5	81.4	65.2	53.7	30.7
Social Sciences	362	564	59.0	44.3	75.4	62.4	45.5	40.1
Biological Sciences	211	546	24.6	14.7	58.4	55.8	23.7	12.8
Physical Sciences	362	1049	30.1	15.3	56.9	48.1	29.3	13.9
Engineering	227	475	22.0	16.5	34.2	30.9	22.3	13.9
B. Women (Total)	101	210	58.4	35.6	69.3	61.4	58.5	33.3
Humanities	29	41	75.9	68.3	82.8	75.8	75.9	65.9
Education	23	34	43.7	50.0	56.7	52.9	42.9	44.1
Social Sciences	22	55	81.8	30.9	91.0	61.9	69.4	29.1
Biological Sciences	21	53	28.6	18.9	42.8	62.3	28.6	17.0
Physical Sciences	5	26	(2)	11.5	(2)	50.1	(1)	11.5
Engineering	1	1	(1)	-	(1)	(1)	(1)	-

Source: NAS Survey of Earned Doctorates, Items T and R.

[a] This column is not strictly comparable with the other two columns for NDEA doctoral recipients since it was calculated using the NAS codes for academic area while the others are based on the NDEA codes. The bases according to the NAS codes are within 4% of those shown for all academic areas except Education, where the NAS codes yield a base of 134 versus the 173 shown. See Methodology, pp. 5 to 12 for further details.

TABLE III-10

NORC RESPONDENTS: LONG-RUN CAREER PLAN BY FINANCIAL SUPPORT[a] (In Percentages)

NORC Doctoral Candidates	Total (N)	Total %	Career Plan: To Teach at a University	Career Plan: To Teach, Not at a University	Career Plan: University Research or Administration	Career Plan: All Other Career Plans
Total	(3644)	100.0	67.4	12.0	6.8	13.8
NDEA Fellows	(144)	100.0	85.4	5.6	4.9	4.2
Other Fellowship Students	(622)	100.0	74.1	7.7	3.9	14.3
Scholarship Students	(342)	100.0	50.3	20.5	7.0	22.2
Teaching Assistants	(643)	100.0	83.7	4.2	4.5	7.6
Research Assistants	(508)	100.0	69.5	1.6	15.6	13.4
Unsponsored Students	(1354)	100.0	57.9	20.4	6.1	15.6

Source: NORC Study of 1961 College Graduates.

[a] The table is based on a weighted total of 3,644 NORC respondents who were 1961 graduates enrolled for an advanced degree in 1963-64 and who expected to obtain a doctorate eventually. In 1964 these respondents were asked to indicate their anticipated long-run employer and the activities which would be an important part of their long-run career work.

APPENDIXES

APPENDIX I

DATA AVAILABLE FROM THE OFFICE OF EDUCATION FILE OF NDEA FELLOWS

I. Identification

Name of Fellowship recipient

NDEA Fellowship number

Fellow's social security number

II. Fellowship Data

Year of award:
- 1959-60
- 1960-61
- 1961-62
- 1962-63

Type of Fellowship:
- 3 year
- 2 year
- 1 year

Location of Fellowship institution (State)

Identification number of Fellowship institution

Field of study in which Fellowship was awarded (NDEA Program)

Fellowship status:

Completed tenure of Fellowship:
- Fellow completed tenure
- Terminated early--received doctorate
- Terminated early--completed all but dissertation

Resigned:
- Personal reasons
- Career change
- Academic reasons
- Changed school in same field
- Changed school in different field
- Changed field in same school
- Did not register
- Reason unstated

III. Educational Data

Undergraduate Study:

- Location of undergraduate institution (State)
- Identification number of undergraduate institution
- Undergraduate field of study
- Type of undergraduate degree (B.A./B.S./B.E.S.)
- Year of undergraduate degree

Prefellowship Graduate Study:

- Location of graduate institution (State)
- Identification number of graduate institution
- Graduate field of study
- Type of master's degree (M.A./M.S./M.E.S.)
- Year of master's degree

IV. Socioeconomic Characteristics

Citizenship status (U.S./alien)

Sex

Marital status (at the time of the award)

Date of birth

Place of birth (State)

Number of dependents by type (at the time of the award)
- Spouse
- Children
- Parents/In-laws
- Other

APPENDIX II

NATIONAL ACADEMY OF SCIENCES SURVEY OF EARNED DOCTORATES

SURVEY OF EARNED DOCTORATES

Social Security Number: – –

A. Name in full: (7-28) Last First Middle Maiden

B. Permanent address through which you can always be reached: Care of (if applicable)

Number Street City State Zip Code

C. Date of birth: (29, 30) Month, day, year D. Place of birth: (31, 32) State; or country if not U.S.

E. (39) 12 ☐ Married; 11 ☐ Not married (including divorced, widowed)

F. 11 ☐ Male
(30) 12 ☐ Female

G. (33)
0 ☐ U.S. Citizen
1 ☐ Non-U.S., permanent resident
2 ☐ Non-U.S., U.S. citizenship applied for
3 ☐ Non-U.S., other
(if non-U.S., specify nationality)

H. (34) Number of dependents. Use U.S. income tax definition, but do not include yourself

Secondary or high school last attended

I. Name and location (35, 36)

J. Size of graduating class (37) ☐ 1-9; ☐ 10-19; ☐ 20-39; ☐ 40-59; ☐ 60-99; ☐ 100-199; ☐ 200-499; ☐ 500 and over.
0 1 2 3 4 5 6 7

K. Type of school (38) ☐ Public ☐ Private, denominational ☐ Private, non-denominational.
0 1 2

L. Year of graduation from high school (39, 40)

M. List in the table below all collegiate and graduate institutions you have attended, beginning with the first and ending with the one from which you are about to receive your present doctoral degree:

Institution and its location	Dates attended (years only)		Check if full time	Major field		Minor field (Name)	Degree (if any)	Month & year granted
	From	To		Name	Number (see list)			

N. List title of your doctoral dissertation (if more than one, give year of degree for each) and enter the most appropriate classification number and title selected from the accompanying separate Specialties List:

Title of dissertation(s)	Classify. using Specialties List	
	Number	Field Name

O. Please check the box which most fully describes your employment status during the year preceding the doctorate award. (68)
0 ☐ Student, part-time employed. (incl. graduate assistants)
1 ☐ Student, not employed.
2 ☐ On fellowship
Full Time Empl. in:
3 ☐ College or university.
4 ☐ Elem. or secondary school, teaching.
5 ☐ Elem. or secondary school, non-teaching.
6 ☐ Other category.
7 ☐ Working on research grant.
8 ☐ Other status. (specify)

P. Indicate total years of professional work experience (full time or full-time equivalent). (69)
0 ☐ None.
1 ☐ Less than 1 year.
2 ☐ 1-1.9 years.
3 ☐ 2-2.9 years.
4 ☐ 3-3.9 years.
5 ☐ 4-5.9 years.
6 ☐ 6-7.9 years.
7 ☐ 8-9.9 years.
8 ☐ 10-14.9 years.
9 ☐ 15 years or more.

Q. Indicate your prospects and arrangements for your professional future (please check only one). (70)
0 ☐ Am seeking employment but have no specific prospects.
1 ☐ Am negotiating with a specific employer, or more than one.
2 ☐ Have signed contract or made definite commitment (other than categories below).
3 ☐ Returning to, or continuing in, predoctoral employment.
4 ☐ Military service—active duty.
5 ☐ Have postdoctoral fellowship, sabbatical leave, or equivalent arrangement
6 ☐ Other (explain):

R. Indicate type or class of postdoctoral employer (check only one). (71)
0 ☐ U.S. college or university.
1 ☐ U.S. elementary or secondary school
2 ☐ U.S. gov't—federal civilian employee.
3 ☐ Foreign: governmental or private.
4 ☐ State, local, or other government within the U.S. (except educational institutions).
5 ☐ Non-profit organization (other than 0, 1, 2, 3, or 4).
6 ☐ Industry or business.
7 ☐ Self-employed.
8 ☐ None.
9 ☐ Other (Specify)

S. Place of postdoctoral employment (state; or country if not U.S.). (72, 73)

T. Is your postdoctoral activity primarily 0 ☐ Research 1 ☐ Teaching 2 ☐ Administration 3 ☐ Professional services 4 ☐ Fellowship 5 ☐ Other (explain) (74)

U. Indicate, by circling highest grade attained, the education of

(75) your father:	none	1 2 3 4 5 6 7 8	9 10 11 12	1 2 3 4	MA, MD, PhD	Postdoctoral
		grammar school	High sch	College	Graduate	
(76) your mother:	none	1 2 3 4 5 6 7 8	9 10 11 12	1 2 3 4	MA, MD, PhD	Postdoctoral

V. How many older brothers did you have? (if none, write zero) (77)
older sisters? (78) younger brothers? (79) younger sisters (80)

W. Enter here the name of your major adviser
(last name)
(first name, middle initial)

X. List all national professional societies of which you are a member. Write out identifying words in full:

DO NOT WRITE HERE
29, 30 ( ) ( )
31, 32
33
34
35-36
37
38
39-40
41-44 ( )
45-47 ( )
48-49

DO NOT WRITE HERE
50-53
54-56 ( )
57, 58
59-62
63-65 ( )
66, 67
68
69
70
71
72, 73
74
75, 76
77, 78
79, 80

Write in any supplementary information which you believe necessary to complete or explain your answer, or your inability to answer any previous items, referring to each item by letter, on the back of this sheet.

NSF Form 3C-17 Jan. 62
Budget Bureau No. 99.R054.3.
Approval expires 30 June 66

Date prepared Signature

APPENDIX III

CONSTRUCTION OF THE COMMON CODE FOR ACADEMIC AREA AND FIELD OF STUDY

In order to compare NDEA and NAS data, it was necessary to reduce the codes for "field of study" used by each organization to a common set of categories. The NDEA and NAS codes are shown on the following pages, and the table below indicates in terms of the code numbers the way in which these codes were combined into the common set of categories.[1]

Common Code	NDEA Codes	NAS Codes
Humanities		
English, Comparative Literature, Speech & Drama	110,115,160	810,815
Classics, Languages, Linguistics	105,130,135,140 145	820,822,825
All other Humanities	100,120,125,150, 155,199	800,830,840,860,865, 880,888,880
Education	300 through 399	900 through 999
Social Sciences		
Economics and Business Administration	215,225	720,725,850,855
History	235	730
Political Science and International Relations	245,255,260	750,755
Psychology	460	600 through 699
Sociology & Anthropology	205,265,270	700,710,760
All other Social Sciences	200,210,220,230, 234,240,250,263, 299	740,745,798,799,870
Biological Sciences	400 through 499 (except 460)	500 through 599
Physical Sciences		
Chemistry	505	200 through 299
Mathematics & Computer Science	510,520	000 through 099
Physics	530	100 through 199
All other Physical Sciences	500,515,525,599	300 through 399,899
Engineering	600 through 699	400 through 499

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[1] The codes for "field of study" from the NORC survey of 1961 graduates were also reduced to these same categories in a similar manner. However, since these data were not used extensively in the report, the details of this process are omitted here.

NDEA CODES FOR FIELD OF STUDY

Humanities

100	American Studies
105	Classics
110	Comparative Literature
115	English
120	Fine Arts
125	Journalism
130	Linguistics
135	Modern Languages-Germanic
140	Modern Languages-Romance
145	Modern Languages-Other
150	Music
155	Philosophy
160	Speech & Drama
199	Humanities-Other

Social Sciences

200	Agricultural Economics
205	Anthropology
210	Area Studies
215	Business
220	City Planning
225	Economics
230	Geography
235	History
240	History & Philosophy of Science
245	International Relations
250	Library Science
255	Political Science & Government
260	Public Administration
265	Sociology
270	Sociology & Anthropology
299	Social Sciences-General

Education

300	Comparative Education
305	Counseling & Guidance
310	Educational Administration
315	Educational Measurement-Research Design
320	Educational Psychology
325	Elementary & Secondary Education
330	Philosophy-History of Education
335	Physical Education
339	Special Education
345	Specialized Teaching Fields
350	Teaching-Other General Fields
399	Education-Other

Biological Sciences

400	Agriculture-Animal Science--Foods
405	Agronomy-Soils
410	Bacteriology & Microbiology
415	Biochemistry-Biophysics-Pharmacy
425	Biology-General
430	Botany-Plant Science
435	Ecology
440	Entomology
445	Forestry
450	Genetics
455	Medical Sciences
460	Psychology
465	Speech & Hearing Science
470	Zoology-Anatomy-Physiology
499	Biological Sciences-Other

Physical Sciences

500	Astronomy
505	Chemistry
510	Computer Science
515	Geology & Earth Sciences
520	Mathematics & Statistics
525	Oceanography & Meterology
530	Physics
599	Physical Sciences-Other

Engineering

600	Aerospace Engineering
610	Biomedical Engineering
615	Ceramic Engineering
620	Chemical Engineering
625	Civil Engineering
630	Computer Sciences (see 570)
635	Electrical Engineering
640	Engineering-General

Engineering (Continued)

645	Engineering Science
650	Geological Engineering
655	Industrial Engineering
665	Mechanical Engineering-Engineering Mechanics
670	Metallurgy & Metallurgical Engineering
675	Nuclear Engineering
699	Engineering-Other

NAS CODES FOR FIELD OF STUDY

Mathematics

000—Algebra
010—Analysis
020—Geometry
030—Logic
040—Number Theory
050—Probability, Math Stat. (see also 544, 670, 725, 920)
060—Topology
070—Topol. Algebraic Structures
080—Computing Theory & Practice
085—Applied Mathematics

098—Mathematics, General
099—Mathematics, Other
(note also 984: Math Educ.)

Physics and Astronomy

(Note: Theoretical scientists mark "T" on questionnaire following code No.)

100—Astronomy

110—Atomic & Molec. Physics
120—Electricity & Magnetism
130—Mechanics
132—Acoustics
134—Fluids
136—Optics
138—Thermal Phenomena
140—Elementary Particles
150—Nuclear Structure
160—Solid State

198—Physics, General
199—Physics, Other

Chemistry

200—Analytical
210—Inorganic
220—Organic
230—Nuclear
240—Physical
250—Theoretical
260—Agricultural & Food
270—Pharmaceutical

298—Chemistry, General
299—Chemistry, Other

(see also Biochemistry, 540)

Earth Sciences

300—Mineralogy, Petrology, Geochemistry
310—Stratig.-sedimentation
320—Paleontology
330—Structural Geology
340—Solid Earth Geophysics
350—Geomorph., Glacial Geology
360—Hydrology
370—Oceanography
380—Meteorology
390—Applied Geol.: Geol. Engr.; Econ. Geol.; Petroleum Geol.

398—Earth Sciences, General
399—Earth Sciences, Other

Fields Not Elsewhere Classified

899—Sci., General; Sci., Other; Other General Field

Engineering

400—Aeronautical
410—Agricultural
420—Civil
430—Chemical
435—Ceramic
440—Electrical
445—Electronics
450—Industrial
460—Engineering Mechanics
465—Engineering Physics
470—Mechanical
475—Metallurgy & Met. Engineering
480—Sanitary
485—Textile

498—Engineering, General
499—Engineering, Other

Agricultural Sciences

500—Agronomy
502—Animal Husbandry
504—Fish & Wildlife
505—Forestry
506—Horticulture

508—Agriculture, General
509—Agriculture, Other

Medical Sciences

510—Medicine & Surgery
511—Pharmacy
512—Public Health
513—Veterinary Medicine
514—Hospital Administration

518—Medical Sciences, General
519—Medical Sciences, Other

Biological Sciences

520—Anatomy
522—Cytology
524—Embryology
530—Physiology, Animal
532—Physiology, Plant
534—Pathology
536—Pharmacology
540—Biochemistry
542—Biophysics
544—Biometrics, Biostatistics (see also 050, 670, 725, 920)
550—Botany
552—Phytopathology
560—Ecology
582—Entomology
570—Genetics
562—Hydrobiology
564—Microbiology
580—Zoology

598—Bio-Science, General
599—Bio-Science, Other

Psychology

600—Clinical
610—Counseling & Guidance
620—Developmental Gerontological
630—Educational
641—Experimental
642—Comparative
643—Physiological
650—Industrial & Personnel
660—Personality
670—Psychometrics (see also 050, 544, 920)
635—School Psychology
680—Social

698—Psychology, General
699—Psychology, Other

Social Sciences

700—Anthropology
705—Archeology
745—Area Studies (specify area)
720—Economics
725—Econometrics & Statistics (see also 050, 544, 670, 920)
730—History
740—Geography
755—International Relations
750—Political Science, Public Admin.
760—Social Work
710—Sociology

798—Social Sciences, General
799—Social Sciences, Other

Arts & Humanities

800—Art, Fine & Applied (incl. hist. & crit.)
810—English Language & Lit. (incl. Amer.)
820—Foreign Lang. & Lit. Modern (specify)
822—Foreign Lang. & Lit. Classical (specify)
825—Linguistics
830—Music
840—Philosophy
815—Speech & Dramatic Arts

883—Arts & Humanities, General
889—Arts & Humanities, Other

Prof. Fields Not Listed Above

850—Business Administration
855—Home Economics
860—Journalism
865—Law, Jurisprudence
870—Library & Archival Science
880—Religion & Theology

Education

Note: For fields 900-947 and 960-967 final digit indicates level: 0—unspecified; 1—preschool; 2—elem.; 3—secondary; 4—teacher training; 5—higher educ.; 6—adult educ.; 7—other.

900—Foundations: Social, Philosoph.
908—Elem. Educ., General
909—Secondary Educ., General
910—Educational Psychology
920—Educ. Meas. & Stat.
930—Educ. Admin. & Superv.
940—Guid., Couns., Student Pers.
950-959—Special Education
  950—Field Unspecified
  952—Gifted
  954—Speech
  956—Phys. Handicapped
  958—Emot. & Ment. Handicapped
960—Audio-Visual Media

Note: For fields 970-997, and 952-959 even number is for secondary level; next odd number indicates other than secondary level.

970—Agric.
972—Art
974—Business
976—English
978—Foreign L.
980—Home Ec.
982—Ind. Arts
984—Math
986—Music
988—Phys. Ed., Health & Recreation
990—Science Educ.
992—Social Sci. Educ.
994—Vocational Educ.
996—Other Special Field
998—Educ., General
999—Educ., Other

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